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The Commonwealth of Massachusetts.

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FOURTH ANNUAL REPORT

OF THE

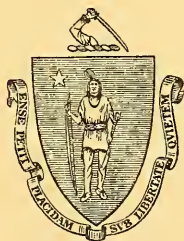
PUBLIC SERVICE COMMISSION.

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JANUARY, 1917.

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Volume I.—Reports and Orders.



BOSTON:  
WRIGHT & POTTER PRINTING CO., STATE PRINTERS,  
32 DERNE STREET.  
1917.



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1885-1886  
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# The Commonwealth of Massachusetts.

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## The Commonwealth of Massachusetts.

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*To the Honorable Senate and House of Representatives in General Court  
assembled.*

We respectfully submit the fourth annual report of the Public  
Service Commission:—



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## COMMISSIONERS' REPORT.

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During the year there has been no change in the personnel of the Commission. The work carried on has, in general, increased in volume. In the records of the Commission a distinction is made between "petitions" and "complaints." The former include all cases where definite action is sought, by companies or patrons, requiring the direct exercise of powers conferred upon the Commission by the statutes and necessitating public hearings and a formal trial of the issues involved. The latter are the more numerous instances where complaint, either written or oral, is made of certain existing conditions and the help of the Commission is sought in a more informal way. There are also "investigations" made, independently of petitions or complaints, upon the Commission's own motion or at the direction of the General Court, including department reports made the basis of formal action by the Commission; and there are "applications" by companies for action provided for in the statutes but requiring no public hearings. The following table shows the number of separate matters in the calendar years 1915 and 1916, listed under these heads:—

		<i>Petitions.</i>	
CLASS.		1915.	1916.
Railroad,	. . . . .	20	27
Street railway,	. . . . .	157	198
Telephone and telegraph,	. . . . .	4	8
Miscellaneous,	. . . . .	14	18
		— 195 —	251
		<i>Investigations.</i>	
Railroad,	. . . . .	12	12
Street railway,	. . . . .	9	6
Telephone and telegraph,	. . . . .	1	1
		— 22 —	19
		<i>Complaints.</i>	
Railroad,	. . . . .	84	160
Street railway,	. . . . .	87	219
Telephone and telegraph,	. . . . .	412	603
Miscellaneous,	. . . . .	8	21
		— 591 —	1,003



CLASS.	<i>Applications.</i>	
	1915.	1916.
Railroad, . . . . .	183	201
Street railway, . . . . .	236	161
Telephone and telegraph, . . . . .	3	8
Miscellaneous, . . . . .	11	32
	— 433 —	— 402 —
Total, . . . . .	1,241	1,697

In 1916 the number of days in which public hearings or formal conferences were held on contested matters was 162, as against 111 in 1915.

The informal complaints, which have so greatly increased in number during the past year, represent an important branch of the Commission's work. As stated in the last annual report, it is the intention of the Commission to make its departments readily available for public use, and it is also its policy to adjust as many complaints and disputes as possible without the necessity of formal proceedings. In this way friction and irritation are avoided and time is saved for all concerned. Under the present system, all complainants are given the benefit of an independent investigation by the appropriate department, where the facts require investigation, and every effort is made to reach a settlement of the questions in issue by conference and mutual agreement. Complainants are given clearly to understand, however, that, if no satisfactory adjustment can be reached in this way, they have the right to bring the matter before the Commission by formal petition. Where such a course proves necessary and the direct exercise of its mandatory powers is sought, it is the policy of the Commission to conduct its investigation with full publicity and to state specifically in its final decision the facts disclosed and the reasoning upon which conclusions are based. In all cases the Commission further acts upon the principle that it is not merely a judicial body empowered to determine as between two sides the preponderance of evidence, but a body endowed as well with powers of research and investigation and intrusted with the active duty of exercising those powers in the general public interest.

It is the desire of the Commission in every way within its power to increase the effectiveness of its departmental work. Much of this work attracts little public notice, but its importance cannot be over-estimated and is not confined to the direct dealing with specific complaints. Perhaps the best function that a regulating commission can perform is to prevent the creation of conditions detrimental to the public welfare. Experience has shown that, once such conditions are allowed to develop, it is difficult to protect innocent parties from the results and any effective cure is often well-nigh impossible. If the corporations under the supervision of the Commission realize that they are under vigilant surveillance, that their returns are carefully scrutinized, that their books and records may at any time be examined by its accountants and their physical property by its inspectors or engineers, and that the full light of publicity may at any moment be thrown upon any of their transactions, a strong incentive is offered to prudent, conservative and efficient management, an incentive which is of very real value to the general public.

In this connection the Commission desires to express its appreciation of the assistance rendered during the year by its departmental employees and, indeed, by its entire office force. Attention is called to the fact that, in the budget which it has submitted for the ensuing year, provision has been made for increases in the salaries of certain of these employees. These increases in the aggregate are small and are confined very largely to employees now receiving \$1,500 per year or less. A public body entrusted with the duty of regulating public service corporations must cope with men of great ability receiving generous compensation for their services. The Commission does not feel that it is necessary to pay, in the service of the State, such salaries as are frequent in private enterprise, but it is strong in the belief that, if it is to be able to attract to and keep in its employ men of the capacity which the service demands, certain conditions, at least, are essential:—

- (1) The original appointment and continued service of all employees must be independent of political considerations.
- (2) All vacancies and new positions should by preference be filled through promotion, wherever feasible.

(3) There must be reasonable expectation that added experience and years of faithful service will bring a gradually increasing compensation.

(4) The Commission must, within reasonable limits, be free to give proper encouragement to initiative and ability.

The first two conditions are within the Commission's own control and they represent its policy. In the case of the last two, it must depend upon the co-operation of the General Court. The increases which have been recommended are moderate and less than the similar increases which the companies supervised have found it necessary, with the growing cost of living, to make from time to time in recent years. The Commission considers these increases essential to the proper performance of its duties under the statutes.

During the year but one change has been made in the force of departmental employees. On July 3, 1916, Daniel M. Wheeler, who had served the Commission and its predecessor, the Board of Railroad Commissioners, faithfully and well as an inspector for more than twenty years, retired under the provisions of section 3 of chapter 552 of the Acts of 1911, having reached the age of retirement. His place has been filled through promotion by Charles E. Montgomery, and a new assistant inspector, Timothy J. Lynch of Northampton, has been appointed.

#### RAILROADS.

The gross earnings of the steam railroads operating in Massachusetts for the year ended June 30, 1916, were the greatest in their history and receipts have been increasing since that date. The volume of freight traffic has been unprecedented and has created complications which have in certain respects been unfortunate, not only for shippers and receivers of freight, but for the companies themselves. These complications, while they are pronounced in the present instance, have not in general character been strange or unusual when viewed in the light of past experience. The following quotation has interest in this connection:—

The great increase of business represents the share which the railroads of this state have had in the general business activity and prosperity of the country. Here, as elsewhere, most of the railroad companies were found unprepared for the enormous volume of business which was precipi-



tated upon them as a result of the full harvests of the West, and of the dearth in Europe. They were found wanting in locomotive power, in the number of freight cars, and sometimes in experienced train-hands. Nor could these wants be at once supplied.

As one consequence of this want, it is charged that Western cars entering New England have been detained here for local use, and sometimes returned by other and longer routes than those by which they entered the Eastern states. This has been a source of annoyance to railroad managers, and an injury to the business of this section.

These words, while they fit the present situation with general accuracy, were, as it happens, written over thirty-six years ago and appear in the twelfth annual report of the Massachusetts Board of Railroad Commissioners (page 17), made to the General Court in January, 1881. Steam railroads, it seems, have "peak loads" of traffic which do not recur with regularity from year to year but make their presence felt in irregular periods of years, and the companies have seldom been adequately prepared to meet the demands thus imposed.

In the present instance the shortage of cars and facilities has been felt all over the country. Embargoes have from time to time been necessary; also the adoption of temporary measures for accelerating the movement of cars, such as substantial increases in demurrage rates. The volume of intrastate freight traffic in Massachusetts is comparatively small and the problem has been nation-wide in its aspects; but the Commission has done all that it could to support the Interstate Commerce Commission in its treatment of the situation, a treatment which has already resulted in material relief.

The road which has, perhaps, felt to a greater extent than any other the disturbing effects of these business and traffic conditions has been the New York, New Haven <sup>New York,  
New Haven  
and Hartford.</sup> and Hartford Railroad Company. Much of the great and unusual increase in its gross earnings during the year was absorbed by the added expense caused, not only by unfavorable weather conditions, but by the lack of adequate facilities for handling the business. In the last annual report to the stockholders, it is said that "the plant of the company must have substantial additions made to it, if it is to perform the present business satisfactorily and economically and be ready to do the constantly growing business of New England."

It is estimated that improvements costing about \$28,000,000 should be made "as soon as the money, men and materials can be obtained," and this further statement appears:—

If these expenditures can be made, the capacity of the road will be increased, better service will be given to the public, and large savings in expenses can be made which are most important, especially if wages and material are to continue on the present basis. The Company is preparing to do as much of this work as practicable, believing that the only way it can be restored to a dividend-paying basis is to put the plant in condition to produce and furnish safe and adequate transportation at the lowest unit cost, and to give improved working conditions to the employees.

The Commission has no doubt that these and even greater expenditures would be of decided advantage both to the public and to the company itself. This is a fact which has been known and understood for some years and has, indeed, been the moving cause of much legislation both in this commonwealth and in the neighboring states of Connecticut and Rhode Island. For the very purpose of aiding the company in its financing, the three states have made adjustments in their general laws to secure greater uniformity and have also passed special acts.

As yet, however, these efforts to aid the company in providing for its manifest necessities have not yielded the results desired. Since 1913, the road has definitely adopted no general and comprehensive plan of financing and has not attempted to issue permanent securities even for the immediate improvements which are so desirable in its own interest. Beyond question, it has been faced in the past few years by a very trying situation, and the present management has done work which has been remarkable, and no doubt has been necessary, in conciliating public opinion and inducing a more sympathetic attitude towards its misfortunes. As a result, with little popular objection, rates and fares have been increased, passenger service has been reduced, plans have been postponed for grade crossing abolition, electrification and other improvements calling for the expenditure of large sums of capital, and special legislation has been enacted. The problem now is to build upon this foundation. In other words the time has come when the

energy which has been expended upon the moulding of public sentiment may be devoted more directly, with profit to all concerned, to the management, operation and financing of the system.

One further step the Commonwealth can and ought to take, both for its own future protection and to aid the company in its financing. . In an extensive report relative to the "Capital Expenditures, Investments and Existing Contingent Liabilities of the New York, New Haven and Hartford Railroad Company," which the Commission made to the General Court at its last session (House Document No. 1900), legislation was urged affecting the relations of the company with many of its subsidiary corporations. Without undertaking to repeat in detail the reasons for this recommendation, which were fully stated in the report mentioned, its general purpose was to remove the present doubt as to the legal status under Massachusetts laws of certain of the company's holdings of stocks and securities of other corporations, to provide for the simplification of and better public supervision over its entire system of owned and controlled properties, and to supply a gradual cure for much of its waste of capital in recent years without, however, further impairing the credit of the company or its ability to care for the transportation needs of the community. A further statute was also urged amending the general railroad laws of the Commonwealth so that they may, in the future, stand more effectively in the way of acts such as the New Haven company has been guilty of in the past.

These recommendations were made comparatively late in the session and, since the opportunity for their consideration seemed inadequate, were referred to the next General Court. The Commission respectfully renews them at this time. The railroad company, at the hearings last spring, in part favored and in part opposed the legislation suggested. Much of the opposition, however, was directed to the phraseology rather than to the essence of the bills, and it is possible that the views of the Commission and of the company may, in some measure, be harmonized by suitable amendments. So far as this can be done before the hearings are renewed this year, it will be done.

The affairs of the Boston and Maine Railroad are still in an unsatisfactory state. The trustees appointed by the United States District Court, who now hold and vote the **Boston and Maine.** majority stock owned by the New York, New Haven and Hartford Railroad Company, have endeavored without success to secure an agreement of conflicting interests which would make possible a voluntary reorganization of the system through consolidation with the leased lines. On August 29, 1916, upon petition of certain unsecured creditors, a temporary receiver was appointed and the question whether this receivership shall be made permanent is now before the Federal court. During the year ended June 30, 1916, operating revenues increased \$5,402,379 over the preceding year, and net income applicable to dividends increased \$4,400,153. This may be contrasted with the showing of the New Haven company, whose operating revenues increased \$10,932,389 and its net income but \$2,007,785. The net income of the Boston and Maine Railroad for the past fiscal year, indeed, amounted to more than 10 per cent upon the par value of its outstanding stock and made possible the conversion of a profit and loss deficit of \$3,814,173 into a surplus of \$23,966.

This favorable showing, however, does not, in the judgment of the Commission, make a radical reorganization of the system any the less desirable. Aside from the fact that the present volume of business, judged by past experience, is probably abnormal, the great outstanding need of the Boston and Maine Railroad at the present time is the investment of new capital. In this connection the Commission desires to repeat and emphasize the comments in its last annual report (page xvii):—

. . . Its system of railroads, upon which northern New England so largely depends, is distinctly below standard. It has only seven miles of rock-ballasted track in all Massachusetts; some of its more important bridges are inadequate to the proper development of its business; its passenger and freight car equipment is far from what it should be; and its terminal and junction facilities are in many cases antiquated, inadequate and inefficient. This is particularly true of the passenger and freight terminals in metropolitan Boston. If New England is to prosper as it ought to prosper, this railroad system must be transformed into a modern and efficient agency of transportation.



The securing of the needed new capital will undoubtedly be greatly facilitated if a reorganization can be effected which will reduce materially the present disproportionate load of fixed charges. The financial showing which the company is now making, however, strengthens the objections to including in the plan of reorganization any provision which would amount, in substance and effect, to an assessment upon the common stockholders.

The passenger service of the steam railroads operating within the commonwealth has been distinctly unsatisfactory. Train delays have been very frequent, especially during the winter months. Following a report received Passenger  
Train Service. from its inspection department, the Commission made service upon the New York, New Haven and Hartford system the subject of special inquiry, with results which were fully stated in an opinion recently issued. Unsatisfactory conditions, however, have not been confined to the New Haven system, but have existed upon the other railroads as well. The inspection department, indeed, is at present engaged in a detailed study of passenger service upon the Boston and Maine system. Much of the trouble has sprung from the congestion caused by the unprecedented volume of freight traffic, but, after giving due consideration to this fact, it is still clear that motive power, car equipment and operating methods should be improved. The Commission will keep the situation under close observation, taking such action from time to time as may seem necessary.

Conditions affecting public safety in the passenger train service have also received special attention. During the year the bridge and signal engineer of the Commission, with his assistant, covered all the Boston and Maine and New York, New Haven and Hartford lines within the commonwealth in a track motor car, examining and testing the signals installed. In the course of these tours of inspection, many defective or undesirable conditions were discovered which were reported in detail to the Commission, and copies of these reports were transmitted to the presidents of the two companies for their immediate consideration. Steps are being taken to



improve conditions and the engineers have been directed to keep in touch with the situation and advise the Commission of the progress made. Similar inspections of the signal systems of the other railroads within the commonwealth are to be made.

In its last annual report the Commission discussed the peculiar situation then existing with respect to the transportation of milk in New England, the so-called "open car" system prevailing within Massachusetts and the so-called "leased car" system prevailing in the interstate traffic. This discussion contained the following paragraph (page xix): —

On September 16, 1915, the Boston and Maine Railroad filed with this Commission and with the Interstate Commerce Commission tariffs increasing its rates for milk transportation, both intrastate and interstate. These tariffs were suspended and at a public hearing on November 3, 1915, the Commission opened up the whole question of milk transportation and of the two systems under which it is now conducted. It has also requested the Interstate Commerce Commission to take similar action. In the opinion of the Commission, the decision by the Interstate Commerce Commission in 1912 ought not to be considered conclusive, but the relative advantages and disadvantages of the "open car" and the "leased car" systems ought to be thoroughly investigated in the light of the experience since that decision, both of milk users and of milk producers, with a view to determining the best system that may uniformly be applied in the public interest both for intrastate and interstate shipments. It seems fairly obvious, also, that that system should prevail which encourages the production and shipment of milk in localities relatively near to the point of consumption.

Subsequently, the Interstate Commerce Commission enlarged the scope of its investigation, as requested, and prolonged public hearings were held at which the Attorney-General appeared for this Commission and also for the Department of Health and Board of Agriculture. In its decision, which was made on July 11, 1916, the Interstate Commerce Commission found that "charges and regulations maintained by respondents, applicable to shipments of milk and cream in carloads under the leased car system, unduly prefer the users thereof, and unduly prejudice shippers of the same commodities in less-than-carload lots, and are, therefore, unlawful and may not be maintained for the future." The order prescribed in detail

a new basis of less-than-carload rates for the transportation of milk in open milk cars with the carrier furnishing refrigeration, the rates per can being relatively lower for the larger size containers. The carriers were further directed to establish carload rates at  $87\frac{1}{2}$  per cent of the less-than-carload rates; rates in freight train service at 75 per cent of the passenger, or milk, train rates; and baggage car rates, without refrigeration, at something less than the milk car rates. They were also given permission to charge 25 per cent more for cream than for milk.

Tariffs in conformity with this decision have gone into effect all over New England except in this commonwealth, where the rates applicable to the intrastate business have been suspended, upon complaint, pending further consideration. It has been urged that certain features of the new schedule are likely to have an injurious effect upon the production of nearby milk for the Boston market which is unjust and which was not desired nor contemplated by the Interstate Commerce Commission. These contentions are receiving careful investigation, and, if it appears that they are warranted, the Commission will take steps to remedy the situation, either through the exercise of its own powers or through appeal to the federal authorities. The decision of the Interstate Commerce Commission in general, however, has marked a long step forward in the solution of the vexatious question of milk transportation in New England.

As a result of the report filed with the last General Court by the "Terminal Commission," so called, two resolves were passed. The first (chapter 148, Resolves of 1916) directs this Commission "to investigate the condi-  
Terminal  
Conditions.  
tion of the elevated railway structure in Atlantic avenue in the city of Boston in order to ascertain the feasibility of using the structure to carry railroad equipment," and to prepare plans and estimates "for any necessary strengthening or widening of the structure and also plans for a connection of the tracks on said structure with wharves and warehouses and with the tracks of the Boston and Maine, Boston and Albany and New York, New Haven and Hartford railroads." A report in accordance with this resolve will be made to the General Court, as directed, in the very near future.

The second resolve (chapter 149, Resolves of 1916) directs the Commission "to investigate forthwith the method of receiving and delivering freight in the railroad freight houses in the city of Boston, and the causes of delay in the loading and unloading of freight cars; also the charges made by railroad corporations for switching cars in metropolitan Boston; and to take necessary steps and to make appropriate orders to the end that delays may be diminished, congestion relieved and charges made uniform." The questions with which this resolve deals have long been the subject of controversy and have been discussed at length, not only in the report of the "Terminal Commission," but also in other similar reports made in years past. By the resolve the Commission is directed, not to make further report, but to take the "necessary steps" and to make the "appropriate orders" which the situation seems to demand, so far as they are within the powers conferred upon it by the statutes. The Commission realizes that what the General Court now desires is not discussion but action. For this reason it has seemed best to defer public hearings until the Commission was prepared to submit for consideration certain tentative but concrete proposals, in order that the hearings might be directed to definite issues rather than to a general and indefinite situation.

In accordance with this plan, the Commission has directed C. Peter Clark, the chief of its rate and tariff department, who has had many years of practical experience as a railroad official in dealing with freight traffic problems, to make a personal investigation of the matters specified in the resolve and to submit to the Commission a report accompanied by definite recommendations. Mr. Clark's investigation will cover the location and character of freight houses in Boston, the methods employed in receiving and delivering both carload and less-than-carload freight, the means by which freight is transferred across the city, and the switching charges now in effect. He has studied methods, practices and charges in other large cities and all pertinent decisions of the Interstate Commerce Commission, and has been asked to consider, in the first place, what improvements may be made with present facilities and without any large expenditure of capital; in the second place,

what improvements requiring new capital may be made which are likely to result in net economy to the companies; and, in the third place, what further improvements should now or ultimately be made which may not result in net economy but which are required by public necessity and convenience.

Mr. Clark's report will be submitted in the near future, and, when received, will be printed and be available for public distribution. Public hearings will then be held at which the railroads and other interested parties may discuss the recommendations made and submit such evidence or alternative plans upon their own behalf as may seem to them necessary or advisable. Mr. Clark's recommendations will be used merely as a definite basis for the concrete consideration of the questions which the Commission has been directed by the resolve to investigate.

#### STREET RAILWAYS.

During the year the Commission concluded the consideration of the "Bay State Rate Case," undoubtedly one of the most important street railway fare cases ever tried in this country. It was especially complicated and difficult because the Bay State Street Railway Company is neither an urban nor an interurban property, but a composite of both. It is really a collection of urban systems, scattered all over eastern Massachusetts and tied loosely together by so-called interurban lines which are slow-speed routes located largely along country highways. One of the most difficult questions for the Commission to decide was how far this great and complex system, operating in 91 cities and towns, including those in New Hampshire and Rhode Island, ought to be regarded as a single unit for rate-making purposes and to what extent patrons in the richer territory ought to be called upon to make up deficiencies in the lean.

This difficulty was increased by the fact that inter-relation between the various parts of the system is limited, for the amount of long-haul traffic passing from one urban center to another is in general small, owing to the slow-speed character of the interurban lines. It was further accentuated by the fact that, when the various parts of the system were combined, they were put together upon the understanding, expressed in



the law, that rates should not be increased nor service decreased by reason of the consolidation. Many of the urban parts, upon the figures submitted, were showing returns which, considered alone, furnished no ground for an increase in rates. In the end, the Commission excepted from the general increase allowed the territory which the company had itself differentiated by proposing to sell therein tickets at the rate of nine tickets for fifty cents. The fact that a six-cent unit fare now is charged upon certain parts of the system and a five-cent unit upon others has, however, caused some complications which may require adjustment at the end of the experimental period of one year, when the whole situation will be subject to review as provided in the Commission's decision.

In conducting its inquiry into the affairs of the company, in connection with this case, the Commission endeavored to secure definite information in regard to its management and operation, with a view to determining whether or not additional net income might be secured through improvements in methods and practices, and Bion J. Arnold of Chicago was employed for this purpose. While the results of this investigation, which were described at length in the Commission's report, played no very important part in the final determination of the fares to be charged, the inquiry which was made has had and will continue to have, in the judgment of the Commission, a beneficial effect, not only upon the management of the Bay State Street Railway Company, but upon street railway operation throughout the Commonwealth.

Certain conclusions applicable to the general street railway situation in Massachusetts may be drawn from the recent investigations which have been made by the Commission in connection with proposed increases in street railway fares:—

*First.*—The terms of any further consolidations of street railway properties which may be sought must be scrutinized with great care. In the past, the tendency has been to estimate somewhat too highly the virtue inherent in such consolidations and to permit them freely, provided the total capitalization outstanding remained unchanged. The result has been that prosperous companies have frequently taken over companies with low earning power on the basis of an exchange of

stock share for share, when these latter properties might have been consolidated on a more favorable basis corresponding more nearly to their market value. In this way the resources of the prosperous companies have at times been spread so thin that their financial strength has been impaired.

*Second.* — The freedom with which voluntary associations, organized in the form of express trusts and subject to no public regulation, have been allowed to acquire the stocks of street railway companies has in certain respects been injurious both to the general public and to investors. The latter, no doubt, in many cases have purchased the shares of these voluntary associations, or holding companies, under the impression that they were buying the securities of Massachusetts public service corporations, issued under public supervision; and, while the holding companies may have been of some assistance in the financing of the properties under their control, the desire to maintain dividend payments upon their inflated shares has at times led to a failure properly to conserve and maintain the assets of the underlying companies. Any further extension of the control of such voluntary associations over Massachusetts public utility properties should be prevented by appropriate legislation.

*Third.* — There is ground for doubt, from the experience so far gained in the cases where it has been adopted, whether the introduction of the six-cent unit fare is likely to be of great benefit to the average street railway company. It is of the utmost importance, therefore, to the companies themselves as well as to the public, that every effort should be made to invite additional traffic through faster, better or generally more attractive service and to decrease expense through improved operating methods. In this connection, type and up-keep of rolling stock are worthy of particular attention. The economy from large semi-convertible cars or trailers, easy to load and unload, is marked, and it is now possible, under chapter 671 of the Acts of 1914, to capitalize temporarily replacements involved in substituting such cars for older types, spreading the charge to operating expense over a series of years. The disregard of economy through neglect of paint, cleanliness or general maintenance of cars is equally marked. Because of

the importance of this subject the Commission has felt it desirable, if it can secure the slight increase in appropriation necessary for the purpose, to centralize and further develop the inspection of street railway rolling stock throughout the State, making this the special duty of one particular man. If this plan is carried into effect, this inspector will be expected, not only to direct his attention to the cleanliness and up-keep of the cars, but also to keep himself informed as to the progress in car designing and maintenance throughout the country.

*Fourth.* — The general law now grants to street railway companies a limited right to obtain locations on private right of way. Such locations may be secured by purchase or lease only "for the purpose of avoiding grades and curves in public ways and for such other purposes incidental to the use of such ways" as this Commission may approve. They may be secured through the exercise of the power of eminent domain only to enable the company "in constructing its street railway, or extension thereof, to avoid dangerous curves or grades existing in the highways, or for other similar purposes incident to and not inconsistent with its corporate franchise of operating a railway to accommodate public travel in public ways." See sections 43-46 of Part III of chapter 463 of the Acts of 1906. In 1906, the so-called "Electric Railroad Law" (St. 1906, c. 516) was passed, whose chief purpose was to provide for the construction of fast electric interurban lines operating primarily on private right of way and only incidentally in the public streets. Since 1906, however, while certificates of exigency have been granted to certain contemplated electric railroad companies, not one of these new lines has been constructed. On the other hand, street railway systems like the Bay State are now operating, between populous centers, crooked, straggling lines located in the public ways and incapable, by reason of their limitations, of developing the through traffic between such centers which would undoubtedly exist if proper facilities could be furnished.

In the so-called "Western Trolleys Bill" (St. 1913, c. 765) the Berkshire Street Railway Company, which was authorized in the act to take over the large systems of the Worcester and Springfield companies, was empowered (see section 6) to exer-



cise the right of eminent domain for the purpose of acquiring private right of way or for any other purpose which might be approved by this Commission. It is quite possible that, if such broad power should be granted by the general law, companies like the Bay State Street Railway Company would be able gradually to convert certain existing lines of low earning power into high-speed electric routes, similar to the one now in very successful operation between Fall River and New Bedford, with advantage to all concerned. The "Electric Railroad Law" of 1906 was an attempt to encourage the construction of such lines but has, up to the present time, failed to accomplish this purpose. It would seem that the results desired might eventually be achieved, in certain cases at least, if power similar to that which was given to the Berkshire company in 1913 should be extended to street railway companies generally throughout the commonwealth. The Commission believes that this suggestion is worthy of the careful consideration of the General Court.

*Fifth.* — In view of the present unsatisfactory financial condition of the street railway companies in general, it is imperative that the cities and towns in which they operate should, in their own interest, seek to relieve the companies from all unjust or unnecessary burdens. The importance of such public co-operation was fully discussed by the Commission in its decision in the "Bay State Rate Case" and what was then said it is unnecessary now to repeat, except so far as it relates to the question of maintaining and repairing the public streets, where action by the General Court is desirable. In regard to this matter the Commission said: —

. . . In 1898 an act was passed (St. 1898, c. 578) which was clearly intended to relieve street railway companies from the duty, formerly imposed, of maintaining and repairing the street surface within their track locations and to substitute an excise or "commutation" tax in place of this duty, a tax which the Bay State company now pays. For the year ended June 30, 1914, it amounted to about \$210,000. Nevertheless, the investigation in this case of the property accounts and operating expenses of the company has brought to the surface the fact that it has been required, ever since this law was passed, not only to pay the tax but, with comparatively few exceptions, to do the same work which it was previously required to do.

The courts have held that the law of 1898 did not in fact exempt com-

panies from the duty of caring for the street surface where that duty was imposed, not by the general statutes, but by provisions in original location grants; but in the many cases throughout this system where the original grants contain no such provisions it develops that the Bay State company has, in effect, been required by various forms of persuasion to continue to do the old work. In securing new locations involved in the laying of double track or in the reduction of curves or in other respects necessary to the efficient operation of the road, apparently the company has continually been obliged to dicker with the local authorities and finally to agree to perform work upon the streets which the statutes do not require or even contemplate (Record, pp. 4666-4675).

It is perfectly natural that municipal governments, anxious to keep down the local tax rate by which they are so largely judged, should seek to unload upon the street railway company all possible expense, but such a policy, in the long run, reacts upon the public served. Street railway companies have no mysterious source of revenue, but obtain their funds from the people who ride in their cars. Any burden or tax imposed upon the company these people must ultimately pay. If the tax or burden is unjust it only means, in the final analysis, that a portion of the public is being subjected, by indirection, to an inequitable form of special taxation. Furthermore, the burden is not measured wholly by the cost of the physical work which the company is finally required to do, for the continual dickering over such matters consumes what is, in the aggregate, a very large amount of time and adds materially to the cost of management.

The importance of this question is shown by the fact that, disregarding such matters as grading, bridge work, etc., the cost of the paving alone, for which the Bay State company has paid since the law of 1898 was enacted and which it has been expected to maintain, is estimated at more than \$2,000,000. In a report made to the General Court at its last session the Commission strongly urged that the present system should be changed by eliminating, in effect, the present "commutation" tax, by placing all paving work squarely in the hands of the municipalities, and by requiring the street railway companies to meet only the reasonable cost of any such work done within their track locations. Whether or not this is the best plan that might be adopted is here immaterial, but at all events it is perfectly clear that the companies ought not to be required to pay the present "commutation" tax and at the same time do the work for which this tax was supposed to be a substitute.

As stated in this quotation, the Commission made a special report to the General Court at its last session "Relative to the Repair and Maintenance of Public Ways and Places in which Street Railways are Located" (House Document No. 1950), but the only legislation enacted which dealt in any way with the subject matter of this report (chapter 302, General Acts of

1916) related merely to a minor phase of the situation. In order that there may be a basis for the further consideration of this important matter, therefore, the Commission respectfully renews the recommendations which were made in its special report of last year, which was, indeed, referred to the present General Court.

#### THE QUESTION OF CREDIT.

Beyond question the great need at the present time of most of the steam railroads and street railways operating within the commonwealth is new capital. They need capital not only that they may be able to provide the facilities essential to good and adequate service, but also that they may introduce improvements which will make possible more efficient and economical operation. In view of this situation, many have felt that the Commission, in dealing with questions of rates or service, ought to be guided chiefly by its conception of what will do the most at the moment to promote the sale of the companies' securities.

While this feeling is not unnatural, it is the product of a one-sided point of view and disregards the fact that the Commission exercises no arbitrary power nor unfettered discretion, but is the administrator of a definite code of laws by which its action must be governed. Under the statutes its duty, for example, in any rate case is to determine what rates are "just and reasonable." Such a determination is seldom easy and involves the consideration of many different factors; but no commission or court which has been called upon to deal with the question in actual practice has, so far as we are aware, ventured to suggest that it could properly be decided by reference to the market value of securities. If public service corporations should be permitted, when once they find it difficult to sell new stock, to increase rates without regard to the history, structure or operation of their properties, or to the question of discrimination, public regulation would be greatly simplified, but the results would often be so incongruous and offensive to considerations of justice and equity that they would inevitably meet with public disapproval.

It is quite possible that in certain cases an increase in rates, though inherently unjust and unreasonable, may be expedient

as the lesser of two evils, but this is a broad question of policy which the Legislature must decide in any given case, and which has not been left to the discretion of this Commission. On the whole, however, it is our judgment that the policy with respect to rates and service now followed by the Commission in accordance with the statutes will, in the long run, when reasonably applied, conserve the public interest, afford an effective inducement to sound management and produce the most generally satisfactory results. It is both the desire and the duty of the Commission, in the interest of the public no less than of the investors, to preserve in every proper way consistent with the exercise of its statutory powers, the credit and prosperity of the companies under its jurisdiction.

#### TELEPHONE AND TELEGRAPH COMPANIES.

In its last annual report the Commission urged that it be provided with funds to enable it to undertake a thorough investigation "of the whole situation with respect to telephone service and rates within the commonwealth." This recommendation it desires to renew. The proposed investigation is, in the judgment of the Commission, essential to sound public regulation. Nearly all the telephone service within the commonwealth is supplied by one company, the New England Telephone and Telegraph Company. This company controls several subsidiaries and is itself controlled, together with many other similar companies throughout the United States, by the American Telephone and Telegraph Company, which also controls the Western Electric Company, a corporation engaged in the manufacture of telephone instruments and apparatus and the medium through which the affiliated telephone companies secure practically all their materials and supplies. The whole constitutes what is known as the "Bell system." The telephone service over which the Commission has supervision is thus the product of a huge and intricate system of corporate machinery.

The foundation of any wise and effective system of regulation, especially over rates, must clearly be broad and intimate knowledge. It is imperative that any public body intrusted with the duty of supervision should have an adequate understanding of the thing that it is regulating, of the interrelation of its parts, of the theories upon which its operation is based, and



of the methods by which its results are achieved. Regulation which is not based upon such a foundation is mere groping in the dark. The rate charged to a telephone subscriber in South Boston, by way of illustration, does not stand by itself. It is, but one small part of a complicated rate schedule devised as a whole to meet what the New England company considers to be its needs. The South Boston rate may or may not be fair; but no commission could undertake to give any final or satisfactory answer to this question without knowing whether or not the apparent needs of the New England company are its reasonable needs, whether or not its relations with other "Bell" companies are proper and desirable, whether or not toll service is bearing its fair share of the burdens of the business, and whether or not the widely varying rates for exchange service have been based upon a theory of cost or value which accords with the general public interest.

The information which the Commission desires to obtain may be summarized briefly as follows: —

(1) Knowledge of the corporate history of the New England company, of its earnings in the past and of the actual *investment* in the physical property which it uses in the public service, and also of its investments in the securities of other corporations.

(2) Knowledge of the relation which these subsidiaries bear to their parent company and of important inter-company dealings.

(3) Knowledge of the relations of the New England company to its own parent company, the American company, and of both to the affiliated manufacturing corporation, the Western Electric Company.

(4) Knowledge of the methods of management and accounting followed by the New England company and of the theory upon which it bases its provision for depreciation.

(5) Knowledge of the interrelation between exchange and toll service and of the theory and principles upon which the charges for both are based.

(6) Knowledge of the similar theories and principles upon which the rates for the various classes and forms of exchange service throughout the Commonwealth are based.

Supervision of telephone and telegraph companies, it must be remembered, is a comparatively new field of public regu-

lation, not only in Massachusetts, but throughout the country, and no such fund of information exists as has been accumulated in the many years of regulation of transportation companies and certain other public service agencies. The highway commission did, it is true, institute a general investigation in the comparatively brief period when telephone companies were under its control, but that investigation was not carried on by this Commission and its members gained no experience thereby. Nor are the reasons which led the highway commission to reach many of its conclusions sufficiently indicated by any available information. Furthermore, this investigation failed to cover much of the ground which it seems essential to cover in the public interest. There is, for example, no evidence that information was secured as to actual investment or the important matter of inter-corporate relationships.

Ample power to conduct the proposed investigation is given by the provisions of the Public Service Commission Act of 1913. The Commission, however, needs funds as well as power. At the present time its telephone and telegraph department consists of a chief and two assistants, the total appropriation last year being but \$6,500. The time of these men is fully occupied with the routine matters with which they are continually called upon to deal. Last year, nearly 600 informal complaints relating to service or facilities were investigated by the department, in addition to formal matters requiring the direct attention of the Commission. The work is important and ought not, with any regard for the public interest, to be neglected; but the department cannot carry it on, with the limited facilities at its command, and at the same time conduct the investigation desired of fundamental conditions. Furthermore, accounting and engineering advice is essential to such an investigation, with which the department is not equipped.

For these reasons the Commission asks the General Court for a special appropriation of \$25,000. It has fixed upon this sum, not with any certainty that it will in the end prove adequate for the purpose, for it is impossible to make any accurate estimate in advance of the extent and cost of the work which may prove necessary, but with the conviction that it will be sufficient to enable the Commission to carry on the work with

expedition during the ensuing year and to employ competent men, able to devote uninterrupted time to the work. The Commission, however, has no present expectation that the total cost of the work will greatly exceed the amount now asked for. It will be the policy of the Commissioners to give as much personal attention to the work as possible and to co-operate with any federal body which may have any similar investigations in process, in order that duplication of work and data may be avoided.

#### CASES IN COURT.

As stated in the last annual report, on September 7, 1915, the Commission found that the Gold and Stock Telegraph Company, by the Western Union Telegraph Com- Stock Ticker Case. pany, lessee, and the United Telegram Company, had, without just cause, refused to supply to Calvin H. Foster the continuous quotations of the New York Stock Exchange by means of ticker service as furnished and supplied to others, and that this denial of service constituted an unjust discrimination. On September 27, 1915, the companies in question filed in the Supreme Judicial Court a petition for the annulment or modification of this order. Subsequently, on October 15, 1915, the Attorney-General, acting for the Commission, filed in the same court a petition praying for a mandatory injunction compelling the companies to comply with the order. The cases were consolidated and reserved for the full bench, and on June 19, 1916, the court dismissed the petition of the telegraph companies and sustained the petition of the Commission (224 Mass. 365).

Shortly after this decision was rendered, the companies sued out a writ of error in the Supreme Court of the United States and a supersedeas was issued at the same time, staying the order of the Commission and the decree of the Supreme Judicial Court of Massachusetts. This case is now pending. At about the same time the New York Stock Exchange brought two bills in equity in the Federal District Court in Massachusetts to enjoin the companies from obeying the decree of the Supreme Judicial Court, and to these bills the Commissioners were ultimately made parties defendant. On December 19, 1916, the District Court filed an opinion dismissing the bills on the ground that no federal question was involved.



On August 11, 1916, the Commission entered an order apportioning the cost of relocating and reconstructing Silsbee street in the city of Lynn, in connection with the abolition of grade crossings in that city, in which order seven and one-half per cent of the cost was assessed upon the Bay State Street Railway Company. This proportion of the total assessment was fixed by agreement between the company and the Commonwealth, to be borne by the company if the Commission held it to be legally liable for any part of the cost of said work. On September 15, 1916, this company filed in the Supreme Judicial Court a petition for the review and annulment of this order, upon the ground that the Commission had made an error in law in holding the company to be liable for any part of the cost of the work. No decision has as yet been rendered in this case.

On November 6, 1915, the Board of Survey of Arlington filed in the Supreme Judicial Court a bill in equity to enjoin the Bay State Street Railway Company from raising the unit rate of fare within the limits of the town above five cents, upon the ground that such action would be in violation of one of the clauses in the original location granted by the Selectmen of Arlington in 1897 to the Arlington and Winchester Street Railway Company, to whose rights, privileges and obligations the Bay State Street Railway Company has succeeded. This case was reserved for the full bench, and on June 21, 1916, the bill was dismissed (224 Mass. 463). Both this decision and the decision of the Supreme Judicial Court in the so-called "stock ticker case," above mentioned, contained illuminating and important discussions of the powers of the Commission under the Public Service Commission Act of 1913 (St. 1913, c. 784), and for purposes of convenient reference are hereinafter printed in full.

#### PUBLIC RECORDS.

For many years it has been the practice of the Commission and of its predecessor, the Board of Railroad Commissioners, to publish in the appendix to its annual report a record of every order issued during the year. Many of these orders are of a formal, routine character and, so far as the Commission has

been able to determine, the printed record has, in certain of these cases, served no useful purpose. The matter has been taken up in conferences with the Supervisor of Administration and, owing to the increased size of the annual report and the cost involved, it has seemed best to omit from the appendix some of these formal records. Those which have been so omitted are as follows:—

(1) Orders permitting changes in rates effective on less than statutory notice (pp. 168–175).

(2) Orders suspending proposed changes in rates (pp. 183–185; 187–191). Sufficient record of such suspensions is contained in the report and order finally entered in each such case.

(3) Orders approving plans for railroad and railway bridges (pp. 216–217).

(4) Orders exempting railroads from the duty of erecting and maintaining bridge guards at bridges or other structures having a clear headroom of 22 feet or more above the tracks (pp. 218, 219).

(5) Designation of commissioners on special commissions in the matter of the alteration of railroad crossings (p. 248).

(6) Orders approving highway locations, granted to street railway companies (pp. 319–331).

(7) Certificates preliminary to railroad or railway operation (pp. 335–346).

(8) Orders approving minor changes in structures and stations of the Boston Elevated Railway Company (pp. 362–368).

The page references in the above list are to the appendix of the last annual report, and have been given so that the exact nature of the records which have been omitted might more easily be ascertained. The Commission keeps, of course, records in its office files of all such orders or certificates, which are easily accessible and open to public inspection. If, however, any person is inconvenienced or aggrieved in any way by the omission of these printed records in the annual report, the Commission will be glad to be informed of the fact.

Similar steps have also been taken in connection with the second volume of the report, in which are printed the annual returns made to the Commission by the various companies under its supervision. In the past it has been the practice to

publish these returns in full. The substitution, in 1915, of the forms adopted and used by the Interstate Commerce Commission greatly increased the size of the returns and made the second volume of the report bulky and inconvenient as well as expensive to print. It has, therefore, seemed best to omit, in publishing the returns, some of the detailed tables which are more technical in character and have less general public interest. Even with these omissions, the volume will contain more information than was published prior to the adoption of the Interstate Commerce Commission forms, and considerably more statistical information than other similar commissions throughout the country have, as a rule, seen fit to publish. The tables omitted will be listed at the beginning of the second volume and are open to public inspection at the office of the Commission at any time.

#### LEGISLATION RECOMMENDED.

The recommendations of the Commission with respect to legislation, some of which have already been indicated in the previous discussion, may be summarized as follows:—

##### I.

Legislation of the character recommended in the special report relative to the "Capital Expenditures, Investments and Existing Contingent Liabilities of the New York, New Haven and Hartford Railroad Company," which the Commission made to the last General Court (House Documents of 1916, No. 1900) and which was referred to the present General Court. See pages xi-xiii above.

##### II.

Legislation to prevent the further extension of the control of voluntary associations, organized as express trusts, over the transportation companies of the commonwealth. See page xxi above.

##### III.

Legislation extending the power of street railway companies to acquire and operate on private right of way. See page xxii above.

## IV.

Legislation of the character recommended in the special report relative to the repair and maintenance of public ways and places in which street railways are located which was made to the last General Court (House Documents of 1916, No. 1950) and which was referred to the present General Court. See pages xxiii-xxv above.

## V.

Legislation providing the Commission with a special appropriation with which to conduct a thorough investigation of the situation with respect to telephone service and rates within the commonwealth. See pages xxvi-xxix above.

## VI.

At the suggestion of the accounting officers of the various corporations under its supervision, the Interstate Commerce Commission, on November 24, 1916, issued the following order: —

*It is ordered,* That all common carriers subject to the provisions of the act to regulate commerce, as amended, and the owners of all railroads engaged in interstate commerce as therein defined, be, and they are hereby, required hereafter to file in the office of the Commission on or before the 31st day of March in each year, reports covering the period of twelve months ending with the thirty-first day of December preceding said date, giving the particulars heretofore called for in the annual reports required by the Commission of said carriers and owners of railroads.

The effect of this order is to make the fiscal year, upon which the annual returns are based, terminate on December 31 instead of on June 30, the date in effect until this order was adopted. The change has also been approved by the National Association of Railway Commissioners, and the various state commissions have been requested, in order that the practice may be uniform, to adopt the new date if possible. Under the existing statutes the companies subject to the jurisdiction of this Commission are, in general, required to make annual returns for the twelve months' period ending on June 30. It is desirable, in view of the facts above stated, that this date



should be changed to December 31 wherever it appears in the statutes, and the Commission so recommends. Under its general powers the Commission has, it seems, authority to require returns in any event for the period ending on December 31, and has so ordered, but the change recommended should be made in the statutes so that it will not be necessary, in addition, to require returns for the period ending on June 30.

In this connection, section 151 of Part III of chapter 463 of the Acts of 1906, relative to the annual returns of street railway companies, requires, as noted in the last annual report, the filing of copies of "all leases and contracts made during the year with other companies and individuals." This provision, in the judgment of the Commission, should be eliminated. Under its general powers the Commission has ample authority to require the filing of copies of such leases and contracts, so far as this may be desirable for its information. The filing of copies of *all* such leases and contracts, however, encumbers the records of the Commission with documents, many of which have little or no public importance.

## VII.

Section 14 of chapter 24 of the Revised Laws, as amended by chapter 496 of the Acts of 1912, provides as follows: —

If a magistrate has reason to believe that an inquest to be held by him relates to the death by accident of a passenger or employee upon a railroad or electric railroad or a traveler upon a public or private way at a railroad crossing, or to a death by accident connected with the operation of a street railway or of a railroad for private use, he shall cause a verbatim report of the evidence to be made and sworn to by the person making it, and the report and the bill for services, after examination and approval in writing by the magistrate, shall be forwarded to the board of railroad commissioners within thirty days after the date of the inquest.

About 300 of these verbatim reports are received by the Commission annually, and the files containing them are the subject of daily reference by interested parties.

It would seem to the Commission that the public convenience would be materially promoted if, in connection with the filing of the verbatim reports of the evidence taken at the inquests mentioned in the foregoing statute, a copy of the

findings of the magistrate in such cases could also be forwarded to the Commission. We therefore recommend that the statute above referred to be amended so that a centralization in the filing of all reports affecting accidents on railroads and street railways, resulting in loss of life, may be effected.

### VIII.

The rapid spread in recent years of the use of automobiles has intensified the danger at railroad grade crossings. During the year the standing committee of the National Association of Railway Commissioners on "Grade Crossings and Trespassing on Railroads" met in joint session with the special committee of the American Railway Association on the "Prevention of Accidents at Grade Crossings" and an agreement was reached as to certain recommendations for the better protection of such crossings upon a plan to be adopted uniformly, if possible, throughout the country. These recommendations were as follows: —

(1) That every grade crossing should be protected by an approach warning sign to be placed in the highway at a distance not less than 300 feet on each side of the railroad tracks, the sign to be a circular disc not less than 24 inches in diameter painted white with a black border and black cross lines with the letters "R.R." Where deemed necessary this approach warning sign to be properly lighted at night.

(2) That the railroad companies maintain, within the limits of their rights of way, proper cautionary signs such as are now in use or authorized by law, and where deemed necessary such sign shall be equipped with a red light at night.

(3) That all lights displayed at night towards the highway at grade crossings shall be red.

(4) That all crossing flagmen use during the day a uniform disc 16 inches in diameter painted white with a black border and the word "STOP" painted thereon in black letters about 5 inches high, instead of the varicolored flags which are now being used.

(5) The uniform painting of all crossing gates with alternate diagonal stripes of black and white.

(6) That the railroad companies, wherever practicable, be required to maintain their property at grade crossings free of obstructions to vision; also that the highway approaches to crossings shall be so graded that the free passage of vehicles shall not be impeded.

(7) That the National Association of Railway Commissioners, the American Railway Association, and the American Automobile Association



consider the advisability of agreeing upon whatever legislation may be necessary in the several states to make thoroughly effective the protection of grade crossings; and that it is our opinion that a uniform law requiring vehicles approaching such a crossing to reduce speed to a safe limit at the warning approach sign is advisable.

As a result of this report, the following resolution was adopted at the annual meeting of the National Association of Railway Commissioners in Washington on November 14, 1916:—

*Resolved*, That the National Association of Railway Commissioners approve the seven recommendations for the protection of grade crossings made in the report of the Committee on Grade Crossings and Trespassing on Railroads just submitted, and recommends to the several State Commissions the submission to the respective Legislatures for passage of a bill or bills for such enactments as may be necessary to put said Committee's recommendations into effect, to the end that, pending the separation of grades, which we regard as the final objective, uniform and effective protection may be provided at grade crossings in the several States.

So far as these recommendations, which were thus approved, relate to action to be taken by the railroad companies upon or in connection with their own properties, the present powers of the Commission are ample to carry them into effect. So far, however, as they contemplate action by cities or towns or restrictions to be imposed upon highway vehicles, further legislation is necessary. A tentative draft of a bill providing for the erection of warning signs in the public highways and imposing certain restrictions upon the operation of motor vehicles in the vicinity of railroad grade crossings was prepared at a joint meeting on November 13, 1916, of the two committees above mentioned and the Executive Board of the American Automobile Association. So much of said draft as is necessary to make effective the specific recommendations of the National Association of Railway Commissioners is embodied without substantial change in the draft of a bill submitted herewith as a basis for legislation by the General Court. As the subject-matter of this bill relates to the use of the public highways, which are under the jurisdiction of other public authorities, the Commission does not undertake to indicate the exact form in which such legislation should be enacted. No doubt, after an

opportunity has been afforded for consideration and discussion of this bill by the Massachusetts Highway Commission and other parties in interest certain amendments will prove desirable.

### IX.

Section 168 of Part II of chapter 463 of the Acts of 1906 now provides that every railroad corporation shall equip its trains and passenger cars with a specified list of tools for use in case of accident. Some of the tools in this list are inadequate or unsuitable for use in connection with the steel equipment which is now being introduced. We therefore recommend that the section be amended so that the Commission shall have power to modify the list in the case of cars of the steel type of construction.

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Drafts of bills embodying the above recommendations are herewith submitted, except in the case of the recommendations numbered I and IV above, where such drafts were submitted in connection with the special reports made last year which were referred to the present General Court, and in the case of recommendation V, where the appropriation desired has already been included in the budget submitted covering the estimated expenses for the ensuing year.

FREDERICK J. MACLEOD,  
EVERETT E. STONE,  
JOHN F. MEANEY,  
JOSEPH B. EASTMAN,  
CHARLES A. RUSSELL,  
*Commissioners.*

## DEPARTMENT REPORTS.

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### RATE AND TARIFF DEPARTMENT.

The Rate and Tariff Department of the Commission has followed the established lines regarding changes in intrastate tariffs, numbering about 1,250 as compared with 800 the previous year. The volume of these changes does not mean, however, that any significant increase in rates has taken place. Following the adoption of a standard basis of class rates during the previous year, many commodity tariffs were found inconsistent and were corrected. Although progress has been made in reducing trolley tariffs to a standard basis, much remains to be done in that direction, as well as in systematizing the tariffs of such of the smaller express companies as come within the jurisdiction of the Commission.

The usual assistance has been given in explaining the interpretation and application of tariffs and a number of misunderstandings have been adjusted without action by the Commission. Several complaints of poor service as well as some unsatisfactory features of the collection and delivery limits of the large express companies have been investigated and adjusted. The new fare basis on portions of the Bay State Street Railway system led to minor complaints which, for the most part, were found to result from misunderstanding between the passengers and conductors and were promptly and easily corrected.

Considerable time has been given to studies of different features of the milk rate case and the Boston terminal situation for use by the Commission in connection with matters now under consideration.

The reparation authority granted by chapter 92, General Acts of 1916, will shortly be invoked to furnish relief in several cases within the provisions of the act, permitting an amicable settlement of matters which otherwise might have resulted in unnecessary litigation.

Probably no tariff change during the year has been of as wide importance as that increasing the demurrage charges on carload freight. The congestion last winter caused much inconvenience and expense. In some cases freight was so badly delayed that manufacturers who had ordered a sufficient supply of material were forced to make additional purchases of spot material, where possible, in order to continue their business. The trouble appears to have been caused, among other things, by an unusually heavy business and bad weather conditions both upon the rail and highway, and in some cases these unsatisfactory conditions were aggravated by neglect or refusal of consignees to promptly unload cars upon arrival, which not only unnecessarily delayed equipment, but occupied track room badly needed by other consignees for unloading.

With the continuation of heavy tonnage moving through the summer and fall, the carriers naturally feared a return of the unsatisfactory conditions which developed last season, and, while the matter appears to have been carefully studied and some steps taken to improve conditions, indications pointed to a recurrence of the trouble this winter. As soon as it was evident that the accumulation of cars was beginning to encroach upon the yard space necessary to permit efficient operation, temporary embargoes were arranged to permit the working off of the accumulation. It is as difficult to obtain efficient rail operation without necessary working track room as to thoroughly mix the contents of a bottle which is filled to the stopper, and, while the interruption to the normal flow of business is a great inconvenience and annoyance, it is clearly the only available relief to avoid a condition of strangulation. Improvement has been realized from better co-operation of consignees in prompt unloading of arriving freight. It is, however, unfortunate that in some cases lack of warehouse room, inability to secure the necessary teams, and perhaps also honest errors of judgment in the too liberal purchase of material in order to avoid possible shortage, have delayed equipment and blocked tracks with no benefit to the consignees and positive hardship to other shippers.

The natural tendency of equipment to follow the demands of traffic has been recognized for years. The annual movement of cotton to the manufacturing centers of the east brings many



cars to this portion of the country and, recently, to this class of freight and the normal supply of food stuffs has been added an unusually heavy tonnage of raw materials for export to Europe. It is easy to see, under these conditions, how the accumulation of equipment can over-tax the track facilities of the east and detain cars badly needed for shipments originating in the south and west. This situation has developed to such an extent that unique arrangements have been devised which, it is hoped, will establish the desirable balance and accomplish the return of empty cars to shipping points as fast as the cars reach destinations and are unloaded. Any disposition to hold cars for storage purposes after they have completed their legitimate function of transportation will obviously throw any adjustment out of balance and cause national economic waste which cannot be compensated in any way as long as the volume of tonnage offered for movement exceeds the available supply of cars. To reduce unnecessary delay in unloading, therefore, the railroads adopted a basis of greatly increased charges for the detention of cars. These charges were investigated by the Interstate Commerce Commission and, with some modifications, have become effective to be used during the present winter. For years the daily charge to consignees for holding a car under load at destination has been: \$0, \$0, \$1, \$1, \$1, \$1, \$1, \$1. The new charge calculated to protect the man using reasonable effort to release the equipment but calculated to enforce the unloading of badly delayed cars, has been placed at \$0, \$0, \$1, \$2, \$3, \$5, \$5, \$5.

The psychological result of this heavy charge appears of value, for some of the territory most badly congested last year reports that more business is being handled under present conditions than a year ago and with 20 per cent less cars in the same territory. A man receiving a car with good weather conditions naturally feels it is safer to attend to unloading promptly than risk a period of bad weather with difficult roads and incur the increased daily charge of \$5. The rules, however, have a certain elasticity so that, should freight arrive under weather conditions making prompt unloading impossible or unreasonable, an extension of time before the heavy penalties commence is provided. To insure the more prompt return



of equipment to owners, an increase of two-thirds in the charge made against borrowing roads has been proposed, which would naturally expedite the return of hired equipment.

A number of inquiries as to the application of these demurrage conditions and application of embargoes, by those whose business does not justify a sufficiently extensive organization to keep them in touch with the general situation, are being answered by this department.

#### INSPECTION DEPARTMENT.

The work of inspection of railroads, railroads for private use and street railways for the fiscal year ending June 30, 1916, was performed under the direction of George W. Bishop, chief of the inspection department, representing the Commission. The number of persons employed in this department is the same as one year ago. The department has made a thorough examination of railroad and railway properties in the commonwealth and the results appear in this report.

#### RAILROADS.

The condition of the steam railroads with reference to road-bed and track shows very little, if any, improvement over the previous year. A scarcity of labor is the principal reason given by the managements for the existence of this condition.

#### *Locomotives.*

The number of locomotive inspections made at various times was 5,363. In 4,684 inspections no defects were found. In 679 inspections locomotives were found defective because of steam leaking to obscure the vision of engine men, or were found to have defective boilers, wheels, spark arresters or ash pans. These defects were called to the attention of the proper officials and remedied. The number of special examinations of spark arresters and ash pans was 2,277.

During the year, 19 new locomotives were put into operation in Massachusetts. Ten were of the Mikado type, four were Mallet and five were switching engines, all being installed on the Boston and Albany railroad.

*Frog and Switch Blocking.*

The number of pieces of foot blocking found to be missing or defective and called to the attention of proper officials during the year was 1,616.

*Bridge Guards.*

The number of bridge guards found defective and called to the attention of proper officials and remedied during the year was 1,070.

*Steam Passenger Train Equipment.*

During the year 11,162 passenger coach inspections were made and in 9,977 of these no defects were found. The number of coaches inspected and found defective with reference to wheels, brakes, lighting, car seat frames, missing emergency tools, or because of dirty condition, was 1,185.

The most noticeable improvement in steam passenger train equipment was caused, not by the purchase of new cars, but rather through the retirement from service of undesirable cars which had been in use from 32 to 45 years. During the year the New York, New Haven and Hartford Railroad Company retired 179 cars, the Boston and Albany Railroad 26 cars, the Boston and Maine Railroad four cars; making a total of 209 cars retired from service in Massachusetts. The Boston and Maine Railroad has retired, since June 30, 1916, 67 passenger cars, while the Boston and Albany Railroad announces the retirement of 40 more in the near future.

*Steam Freight Train Equipment.*

The number of freight cars inspected and no defects found was 2,565, found defective, 35; caboose cars inspected and no defects found, 296, found defective, 48; milk cars inspected and no defects found, 153, found defective, 5.

*Passenger Stations.*

The number of inspections of passenger stations made at various times where stations were found to be in good or fair condition was 4,398. The number found defective with respect to platforms, lavatories, or because of untidy conditions, and called to the attention of proper officials and remedied, was 106.

*Complaints.*

The number of complaints received in connection with railroad operation was 68. These complaints were investigated and adjusted by this department, thus obviating the necessity of public hearings or conferences by the Commission.

*Accidents on Steam Railroads.*

The number of fatal accidents to individuals investigated was 283. The number of serious personal injuries investigated was 97.

The number of other accidents investigated, such as derailments and collisions, was 86.

## PRIVATE RAILROADS.

During the year this department has devoted much time to an endeavor to apply the general laws relating to safety upon railroads to private railroads, which are constructed and operated under varying conditions. The task is a difficult one, and the work is not completed. It has, however, progressed and is being carried forward to completion as rapidly as possible.

## STREET RAILWAYS.

The condition of street railway properties in Massachusetts continues, as a whole, to be unsatisfactory. Usually the managements of the street railway systems express a willingness to make necessary repairs and to improve their properties, but claim that the financial condition of the companies will not permit it. For this reason and because of the scarcity of labor and the high cost, as well as delay in the delivery, of material, few improvements have been made. In many instances a lack of reasonable repairs is evident.

*Complaints.*

The number of complaints received relative to the operation of street railways was 111. These complaints were investigated and adjusted by this department, thus making unnecessary the holding of public hearings or conferences by the Commission.

The number of inspections for new street railway tracks made as a preliminary to issuing certificates of operation was 110.

*Street Railway Equipment.*

During the year 4,040 car inspections were made and in 3,122 cases no defects were found, the number of cars found defective with reference to wheels, brakes, lighting, car seat frames, or through untidy conditions, being 918.

*Accidents.*

The number of fatal accidents to individuals investigated was 105. The number of accidents due to broken or loose wheels, broken journals and axles reported, was 115; miscellaneous accidents investigated, such as collisions, personal injuries and accidents caused by faulty operation, 592; accidents caused by spread rails, broken rails, defective special work, poor surface and alignment of track, 746.

The records of the office show that the accidents caused by persons coming in contact with either fenders or wheel guards, or both, were: fatal accidents, 24; serious accidents, 15; neither fatal nor serious, 280.

Lifting jacks were used eight times to extricate persons from underneath cars. In three instances the time consumed was five minutes each, in one instance fifteen minutes, in another eight minutes, in another four minutes, in another three and one-half minutes, in another three minutes.

The number of inquests in cases of death by accident attended by inspectors and assistant inspectors during the year was 387.

The reports concerning the investigation of such accidents as were specifically called to the attention of the Commission will be found in full in the appendix to the Commission's report.

ENGINEERING DEPARTMENT.

During the year there has been no change in the personnel of this department.

Investigations of expenditures have been made on account of additions and betterments charged against issues of capital stock previously authorized by the Commission or upon which



authority to issue capital stock or bonds was desired by the Boston Elevated, West End, Bay State, Massachusetts North-eastern, and Plymouth and Sandwich street railway companies and the Boston and Lowell Railroad Company.

The department has made examinations and valuations of the property of the Norton and Taunton and the Taunton and Pawtucket street railway companies.

In connection with the petition of the Bay State Street Railway Company for an increase of fares, the greater part of the first half of the year was occupied by the department in a study of, and in checking the valuation of the property made by engineers employed by the company.

Plans and estimates have been prepared for the use of the Commission for its report, under chapter 148 of the Resolves of 1916, in relation to the use of the elevated structure of the Boston Elevated railway in Atlantic avenue for the interchange of freight cars between the North and South stations and with wharves and warehouses.

In connection with the valuation of the steam railroads by the Interstate Commerce Commission, copies of plans and other returns made by the carriers in Massachusetts to the Interstate Commerce Commission are being filed with the department and the unit prices are being studied.

In addition to the above, studies and reports on minor matters have been made and, under authority of chapter 527, Acts of 1914, about ten days have been spent by the engineer attending hearings and examining statements of expenditures in connection with the elimination of grade crossings, for the department of the Attorney-General.

#### BRIDGE AND SIGNAL DEPARTMENT.

During the year ending June 30, 1916, the following work has been done by the bridge and signal department:—

The following statement gives the number of bridges which have been inspected:—

Highway bridges carrying street railways, . . . . .	132
Bridges used exclusively by street railways, . . . . .	111
Steam railroad bridges, . . . . .	347
Total, . . . . .	<hr/> 590

Repairs were recommended in twelve of the above cases, rebuilding in two cases and the replacement of the structures by culverts in eight cases. The strength of twenty-seven bridges of all classes was computed. In addition, a number of plans for rebuilding or strengthening bridges have been received and approved with or without suggested modifications.

Statistics concerning the costs and output of street railway power stations were gathered and arranged for record and publication. The signal conditions involved in seven collisions and one derailment were investigated. Six automatic stops were examined. A report was made on the possibility of effecting certain savings on the Bay State street railway by changes in operation of cars. Considerable time was spent in investigating the possibility of protecting the third rail on the Boston Elevated. The property of the Housatonic Power Company was examined.

The installation of distant signals at certain interlocking towers on the New York, New Haven and Hartford railroad was recommended.

Sixty-four inspections of interlocking towers; fifteen inspections of lever stands and nineteen inspections of signals were made. Thirty-four recommendations of changes in signals were made. Thirty plans for interlocking towers and for signal changes and installations were examined and checked. The operation of signals was observed from locomotives both by day and night.

Approval of proposed changes or new construction were recommended in the following number of cases: 23 towers, 18 lever stands, 20 automatic signal layouts, 13 crossing bells on the steam railroads and 30 signal layouts on street railways. In all the above cases careful study was given to the proposed work and in many cases changes which seemed desirable were recommended before the plans were approved.

The assistant signal engineer also worked on valuation of the Bay State, Plymouth and Sandwich and New Bedford and Onset street railways.

## RAILROAD BRIDGES.

Following is a statement regarding the bridges on the steam railroads of the Commonwealth, accompanied by tables:—

Table I gives the total number of bridges of each type, on each of the railroads.

Table II gives the approximate total length of bridges of stone, wood, and metal, on each road.

Table III gives a summary of the bridge work done during the year ending June 30, 1916.

TABLE I. — Number and Description of Railroad Bridge Spans in Massachusetts, June 30, 1916.

RAILROADS.	Pile Bridges.	Wooden Trestles.	Wooden Stringers.	Braced or Trussed Stringers.	Wooden or Combination Trusses.	Stone, Concrete, or Brick Arches.	I-Beams.	Plate Girders.	Metal Riveted Trusses.	Metal Pin-connected Trusses.	Rails.	Pin-connected Metal Swing Bridges.	Metal Folding, Rolling, Lift, Bascule or Jack-knife Draws.	Pratt, Howe, or other Wooden Jack-knife Draws.	Plate Girder Swing Bridges.	Total Spans Stone Bridges.	Total Wooden and Combination Bridges (Fixed Spans).	Total Metal Bridges (Fixed Spans).	Total Movable Bridges.	Grand Totals.	Total Length of Pile and Trestle Bridging (Approximate).
Boston & Albany, . . . . .	5	2	1	1	1	56	57	167	19	—	—	—	4	—	—	56	7	243	4	310	2,181
Boston & Maine, . . . . .	49	12	51	—	7	99 <sup>1</sup>	76	363	63	40	—	1	5	3	1	99	114	542	10	765	14,230
Boston, Revere Beach & Lynn, . . . . .	5	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	5	—	2	7	4,980
Central Vermont, . . . . .	5	2	7	—	—	—	5	20	9	7	—	—	—	—	—	—	14	41	—	55	502
New York, New Haven & Hartford, . . . . .	71	8	62	1	3	155	71	530	15	19	9	1	7	—	—	155	145	645	8	953	9,707
Totals, . . . . .	135	24	120	1	10	310	209	1,030	106	66	9	2	17	3	2	310	285	1,471	24	2,090	31,600

<sup>1</sup> Two reinforced concrete boxes.



TABLE II. — *Length of Bridging of Wood, Stone and Metal, June 30, 1916.*

RAILROADS.	WOODEN SPANS.		STONE OR CONCRETE SPANS.		METAL SPANS.	
	Num-ber.	Total Length (Feet).	Num-ber.	Total Length (Feet).	Num-ber.	Total Length (Feet).
Boston & Albany, . . . . .	7	2,181	56	1,487	247	12,994
Boston & Maine, . . . . .	117	16,035	99	2,063	549	28,881
Boston, Revere Beach & Lynn, . . . . .	5	4,980	—	—	2	140
Central Vermont, . . . . .	14	618	—	—	41	2,929
N. Y., N. H. & Hartford, . . . . .	145	10,882	155	3,970	659	26,271
Totals, . . . . .	288	34,696	310	7,520	1,498	71,215

TABLE III. — *Bridge Work Done in the Year ending June 30, 1916.*

RAILROADS.	NEW BRIDGES BUILT.			BRIDGES REBUILT OR REPLACED.			BRIDGES STRENGTHENED OR EXTENSIVELY REPAIRED.		
	Wood.	Stone or Concrete.	Metal.	Wood.	Stone or Concrete.	Metal.	Wood.	Stone or Concrete.	Metal.
Boston & Albany, . . . . .	—	—	—	—	1 <sup>1</sup>	10 <sup>2</sup>	—	—	—
Boston & Maine, . . . . .	—	—	—	13	—	2	4	2	31
Boston, Revere Beach & Lynn, . . . . .	—	—	—	—	—	—	—	—	—
Central Vermont, . . . . .	—	—	—	1 <sup>3</sup>	—	—	—	—	1
N. Y., N. H. & Hartford, . . . . .	6 <sup>4</sup>	—	—	10	—	3	13	—	3
Totals, . . . . .	6	—	—	24	1	15	17	2	35

<sup>1</sup> Replaced by concrete.<sup>2</sup> One filled, three made into culverts.<sup>3</sup> Replaced by I beam.<sup>4</sup> One replaced by rails and concrete.

On the Boston and Albany railroad two I beam bridges have been replaced by I beams in concrete; one I beam and three lattice trusses have been replaced by plate girders and one plate girder has been rebuilt in kind; three I beams and one stone arch have been replaced by culverts and one I beam has been filled.

On the New London Northern one wooden stringer bridge has been rebuilt as an I beam and one truss bridge has been strengthened.

On the Boston, Revere Beach and Lynn only ordinary repairs have been made.

On the Boston and Maine the following bridges have been rebuilt in kind; two framed trestles; six pile trestles; four wooden stringers; one I beam and one trussed stringer.

One deck pin truss of three spans, together with its plate girder approaches has been replaced by three spans of riveted trusses with plate girder approaches. Three pile trestles, sixteen plate girders, seven trusses, one I beam bridge and two stone arches have been extensively repaired. One wooden stringer, six plate girders and one pin truss have been strengthened. The usual repairs to ties and guard timbers have also been made.

On the New York, New Haven and Hartford one wooden stringer bridge has been replaced by rails and concrete; three plate girder bridges have been rebuilt; one pile bridge has been rebuilt; eight wooden stringer bridges have been rebuilt; three plate girder bridges have been strengthened; thirteen pile bridges and three plate girders have been extensively repaired.

In addition to the above the pile bridges at Watuppa have been entirely replaced by six new pile bridges and partial filling. The usual repairs and renewals of ties and guard timbers were made in a number of cases.

## TELEPHONE AND TELEGRAPH DEPARTMENT.

### TELEPHONE.

The steady increase in complaints and inquiries concerning telephone service made it impossible during the year to undertake any comprehensive study of traffic or plant conditions, a majority of the complaints requiring the personal attention of either the chief of the department or the two inspectors. Some idea may be gained of the scope of the work from a résumé of the department's activities since its inception less than three years ago.

In 1914, in addition to the handling of some 139 complaints and the securing of numerous changes in the commercial, plant and traffic regulations of the telephone companies, there were 26 inspections of various exchanges and 21 special observations made by the inspectors of the department.

In 1915 there were 376 complaints and inquiries handled, 103 visits to exchanges, 143 service tests from subscribers' stations, 317 service tests from the department, 12 special observations of service and 15 special inspections of exchanges.

In 1916 there were 603 complaints and inquiries; 277 visits to exchanges for various purposes, 5 special service observations, 26 special inspections, 744 service tests from subscribers' stations and 521 service tests from the department.

While many of the complaints required numerous conferences with the Commissioners, there were but few which necessitated a public hearing.

It will be seen from the above figures that a very large part of the time of the department is taken up with specific complaints. With 260 exchanges and about 440,000 stations in the Commonwealth, of which 51 exchanges and about 220,000 stations are within the Metropolitan District, it is possible only to hit the high (or low) spots as far as traffic and plant inspection goes. The most important thing about the telephone, particularly as far as the business community is concerned, is "service" and the work of the department is based on that theory.

So far as the New England Telephone and Telegraph Company is concerned, the lack of proper facilities, both for exchange and toll service, to meet the growing needs of the business, created a situation this year that has been even more acute than that of 1915 which was referred to in our last report.

The company's explanation of the 1915 situation was to the effect that it was impossible to have anticipated so abnormal an increase of business and that steps were being taken to adjust plant and operating conditions to take care of any similar situation during 1916. During the past summer the reports of the inspectors, from time to time, showed little improvement in conditions and, in the middle of the season, Mr. E. K. Hall, vice-president of the New England company, came to the Commission and explained the failure of the plans developed in the fall of 1915 to take care of this year's business. The principal reasons given were: the difficulty experienced by the Western Electric Company, which furnishes all wire and

other materials to the New England company, in securing sufficient quantities of raw material and supplies, and conditions caused by the railroad embargoes during the winter and spring months, which seriously delayed deliveries by the Western Electric Company of such material as was available. It is evident, however, that the poor quality of service in many exchanges was not always traceable to these causes and it can reasonably be stated that there is room for much improvement in service. So far as the department is able, with its limited inspection force, it is constantly on the watch for the weak spots in order to determine whether the failures are the result of insufficient force to handle the varying traffic loads or of other causes. While recognizing the fact that just so long as the service is dependent upon the human element there will always be a certain average percentage of errors, intelligent effort properly directed should tend to decrease rather than increase that percentage.

It has been gratifying to the officials of the department to find a more sympathetic atmosphere among the telephone field forces, as against previous conditions which seemed to prevail, apparently based on the feeling that the presence of the Commission was detrimental, rather than helpful, to the companies and their employees. In the working out of many of the vexatious problems that were presented to the department during the year, the chief of the department desires to acknowledge the spirit of co-operation in which he has been met by the officials of the New England company.

As in previous years, the chief of the department has responded to numerous calls from trade and other associations to discuss the work of the Commission in the matter of telephone and telegraph supervision.

#### TELEGRAPH.

The department has no regular télégraph inspector and any regular observation of conditions in that service was impossible, owing to the fact that the time of the telephone inspectors was entirely taken up with telephone work.

The chief of the department has kept in touch with telegraph matters whenever occasion demanded.



The Western Union company has not seen fit to file a new schedule covering those offices which, for several years, have been operated jointly by the Western Union and the New England Telephone and Telegraph Company and for which the Western Union company filed a new schedule of rates near the close of 1915, when it sought to discontinue that class of offices and increase the rates to and from such points. At the suggestion of the Commission the new schedule was withdrawn and no change has been made in the offices affected.

In the so-called "Stock Ticker case" which was decided by the Commission in 1915 against the Gold and Stock and United Telegram companies, and which went to the Supreme Court of Massachusetts on appeal, — the Supreme Court has since rendered a decision affirming the order of the Commission. A further appeal was taken to the United States Federal Court for the District of Massachusetts and on December 19, 1916, Judge Dodge of that Court handed down a decision which further sustains the Commission's order.

## RAILROAD STATISTICS.

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Annual returns for the year ending June 30, 1916, have been received from thirty-six railroad corporations, also one return has been received from a canal company, and one return from a sleeping car company.

There was returned the past year a net increase of 2.46 miles of railroad line located in this Commonwealth, caused by additions and remeasurements. There was an increase of .10 of a mile of second main track, .23 of a mile of third main track, .52 of a mile of fourth main track and 27.54 miles of side track.

There are now in Massachusetts 2,128.18 miles of main and branch railroad line. The total length of railroad track within the Commonwealth, including second, third and fourth main track and side track, is 4,958.87 miles.

### STATISTICS.

The following compilations of statistics are from the returns of the several railroad companies to the Commission for the year ending June 30, 1916.

The 4.20 miles of road owned by the Hartford & Connecticut Western, located in this Commonwealth and operated by the Central New England, are not included in the following tables and statistics.

The following table gives the length of railroad line and track in this Commonwealth June 30, 1916, as compared with the previous year: —

*Railroad Mileage in Massachusetts, 1915 and 1916.*

RAILROAD MILEAGE.	1915.	1916.	Increase.
	Miles.	Miles.	Miles.
Length of main and branch lines, . . . . .	2,125.72	2,128.18	2.46
Length of second track, . . . . .	949.71	949.81	.10
Length of third track, . . . . .	83.41	83.64	.23
Length of fourth track, . . . . .	45.48	46.00	.52
Length of side track, . . . . .	1,723.70	1,751.24	27.54
Total reckoned as single track, . . . . .	4,928.02	4,958.87	30.85

*Mileage Owned.*

The total length of railroad line *owned* by the Massachusetts companies *in* and *out* of the Commonwealth is 4,418.47<sup>1</sup> miles; and the total length of railroad track so owned is 9,261.09<sup>2</sup> miles. The miles of main and branch line, of second, third and fourth main track, and of side track, owned June 30, 1916, and the increase or decrease over the previous year, are stated in the following table:—

*Mileage Owned by Reporting Companies, 1915 and 1916.*

MILEAGE OWNED.	1915.	1916.	Increase.
	Miles.	Miles.	Miles.
Length of main and branch lines, . . . . .	4,416.33 <sup>1</sup>	4,418.47 <sup>1</sup>	2.11
Length of second track, . . . . .	1,573.28	1,574.22	.94
Length of third track, . . . . .	177.39	175.56	1.83*
Length of fourth track, . . . . .	112.18	112.62	.44
Length of side track, . . . . .	2,919.42 <sup>3</sup>	2,980.22 <sup>4</sup>	60.80
Total reckoned as single track, . . . . .	9,198.63 <sup>5</sup>	9,261.09 <sup>2</sup>	62.46

<sup>1</sup> Includes 18.10 miles electric street railway.<sup>2</sup> Includes 19.28 miles electric street railway track.<sup>3</sup> Includes 1.12 miles electric street railway.<sup>4</sup> Includes 1.18 miles electric street railway.<sup>5</sup> Includes 19.22 miles electric street railway track.

\* Decrease.

*Mileage Operated.*

The length of railroad line *operated* by the Massachusetts companies, *within* and *without* the Commonwealth, including roads operated under lease or contract as well as roads owned, is 5,303.90<sup>1</sup> miles; and the total length of track so operated is 10,792.55<sup>2</sup> miles, — as shown in detail, with the increase or decrease for the year, in the next table: —

*Mileage Operated by Reporting Companies, 1915 and 1916.*

MILEAGE OPERATED.	1915.	1916.	Increase.
	Miles.	Miles.	Miles.
Length of main and branch lines, . . . . .	5,306.29 <sup>3</sup>	5,303.90 <sup>1</sup>	2.39*
Length of second track, . . . . .	1,664.53	1,661.11	3.42*
Length of third track, . . . . .	222.23	220.39	1.84*
Length of fourth track, . . . . .	155.62	156.05	.43
Length of fifth track, . . . . .	9.68	9.66	.02*
Length of sixth track, . . . . .	9.64	9.63	.01*
Length of side track, . . . . .	3,366.98 <sup>4</sup>	3,431.81 <sup>5</sup>	64.83
Total reckoned as single track, . . . . .	10,734.97 <sup>6</sup>	10,792.55 <sup>2</sup>	57.58

<sup>1</sup> Includes 46.80 miles electric street railway.

<sup>2</sup> Includes 50.00 miles electric street railway track.

<sup>3</sup> Includes 50.21 miles electric street railway.

<sup>4</sup> Includes 3.23 miles electric street railway.

<sup>5</sup> Includes 3.20 miles electric street railway.

<sup>6</sup> Includes 53.44 miles electric street railway track.

\* Decrease.

## COMPARATIVE GENERAL BALANCE SHEET.

In any examination for purposes of comparison between the report here following and reports prior to 1914, it must be distinctly understood that by reason of the adoption by the Commission, under authority of law, of the form of return prescribed by the Interstate Commerce Commission, the return now adopted differs substantially in principle from the return formerly in use under authority of the Commission. The assets and liabilities in the comparative general balance sheet of the companies, as returned June 30, 1916, have been tabulated and the increase or decrease in each class as compared with 1915 appear in the two following tables: —



*Assets, June 30, 1915 and 1916.*

ASSETS.	1915.	1916.	Increase.
Road and equipment, . . . . .	\$510,217,951 21	\$512,571,046 19	\$2,353,094 98
Improvements on leased railway property, . .	10,207,812 25	9,967,096 12	240,716 13*
Sinking funds, . . . . .	1,239,653 83	921,669 52	317,984 31*
Deposits in lieu of mortgaged property sold, .	-	-	-
Miscellaneous physical property, . . . . .	5,668,141 97	5,664,905 53	3,236 44*
Investments in affiliated companies, . . . .	219,845,418 31	206,890,791 47	12,954,626 84*
Other investments, . . . . .	42,051,302 68	47,600,420 73	5,549,118 05
Current assets, . . . . .	37,367,007 82	52,245,036 68	14,878,028 86
Deferred assets, . . . . .	3,844,766 23	3,478,931 79	365,834 44*
Unadjusted debits, . . . . .	4,242,518 18	4,662,343 58	419,825 40
Grand total, . . . . .	\$834,684,572 48	\$844,002,241 61	\$9,317,669 13

\* Decrease.

*Liabilities, June 30, 1915 and 1916.*

LIABILITIES.	1915.	1916.	Increase.
Capital stock, common, . . . . .	\$283,712,015 70	\$283,712,015 70	-
Capital stock, preferred, . . . . .	25,009,800 00	25,009,800 00	-
Total capital stock, . . . . .	\$308,721,815 70	\$308,721,815 70	-
Premium on capital stock, . . . . .	34,602,875 21	34,509,999 56	\$92,875 65*
Funded debt, . . . . .	348,692,100 00	349,759,919 50	1,067,819 50
Notes, . . . . .	175,000 00	37,307 69	137,692 31*
Open account, . . . . .	632,536 58	870,233 28	237,696 70
Current liabilities, . . . . .	92,969,130 60	87,290,003 61	5,679,126 99*
Deferred liabilities, . . . . .	12,208,957 01	12,325,942 09	116,985 08
Unadjusted credits, . . . . .	14,970,989 23	20,295,977 41	5,324,988 18
Appropriated surplus, . . . . .	8,275,610 22	9,784,818 06	1,509,207 84
Profit and loss, . . . . .	13,435,557 93	20,406,224 71	6,970,666 78
Grand total, . . . . .	\$834,684,572 48	\$844,002,241 61	\$9,317,669 13

\* Decrease.

## CAPITAL STOCK AND DIVIDENDS.

The aggregate capital stock June 30, 1916 (not including the premiums on sale of capital stock as returned in the form of return), of the thirty-three corporations making returns was \$308,721,815.70.

The total amount of dividends declared during the year was \$7,296,610.00, — an increase of \$4,370.25 over the previous year.

Twenty-one corporations declared dividends varying in rate from  $2\frac{1}{2}$  to 14 per cent; the following table gives the name of the dividend-paying companies, the rate per cent, and amount of dividend declared:—

NAME OF COMPANY.	Rate Per Cent.	Amount of Dividends declared.
Attleboro Branch, . . . . .	4	\$5,268 00
Boston & Albany, . . . . .	$8\frac{3}{4}$	2,187,500 00
Boston & Lowell, . . . . .	8	614,352 00
Boston & Providence, . . . . .	10	399,600 00
Boston, Revere Beach & Lynn, . . . . .	6	51,000 00
Chatham, . . . . .	5	3,410 00
Connecticut River, . . . . .	10	323,330 00
Fitchburg, <sup>1</sup> . . . . .	5	943,000 00
Holyoke & Westfield, . . . . .	14	36,400 00
Lowell & Andover, . . . . .	8	50,000 00
Nashua & Lowell, . . . . .	9	72,000 00
New London Northern, . . . . .	10	150,000 00
North Brookfield, . . . . .	$2\frac{1}{2}$	2,500 00
Norwich & Worcester, <sup>1</sup> . . . . .	8	240,000 00
Old Colony, . . . . .	7	1,560,580 00
Pittsfield & North Adams, . . . . .	5	22,500 00
Providence & Worcester, . . . . .	10	350,000 00
Stony Brook, . . . . .	7	21,000 00
Union Freight, . . . . .	7	20,000 00
Vermont & Massachusetts, . . . . .	6	191,580 00
Ware River, . . . . .	7	52,500 00

The amount of capital stock of the twenty-one dividend-paying companies was \$102,436,725.00<sup>2</sup>, on which the average rate of dividend was 7.12 per cent.

The following table gives the total capital stock outstanding at the end of the year; the net income available for dividends

<sup>1</sup> Preferred stock only.

<sup>2</sup> Including common stock on which, in the case of two of these companies, no dividend was paid.

(after paying all expenses, interest, taxes, rentals and other charges); the amount of dividends declared; and the average percentage of dividends to total capital stock, for each of the last ten years:—

*Capital Stock, Net Income and Dividends, 1907-1916.*

YEARS.	Capital Stock.	Net Divisible Income.	Dividends Declared.	Percent- age to Total Capital Stock.
1907, . . . . .	\$283,509,391	\$17,720,935	\$16,751,279	5.91
1908, . . . . .	235,462,291	11,602,252	17,683,965	7.51
1909, . . . . .	238,900,816	16,065,768	16,964,681	7.10
1910, . . . . .	285,100,341	20,162,394 <sup>1</sup>	18,996,657	6.70
1911, . . . . .	324,445,166	17,335,645 <sup>1</sup>	21,780,406	6.71
1912, . . . . .	328,838,816	21,997,307 <sup>1</sup>	23,298,074	7.08
1913, . . . . .	330,011,516	16,044,299 <sup>1</sup>	22,136,779	6.70
1914, . . . . .	330,012,176	4,564,500 <sup>1</sup>	9,650,896	2.92
1915, . . . . .	308,721,816	9,181,350 <sup>1</sup>	7,292,240	2.36
1916, . . . . .	308,721,816	17,758,541 <sup>1</sup>	7,296,610	2.36

<sup>1</sup> Appropriations for additions, betterments and reserves deducted.

### FUNDED DEBT.

The aggregate funded debt of the companies June 30, 1916 (not including "nonnegotiable debt to affiliated companies" as returned in the form of return), was \$349,759,919.50, — an increase of \$1,067,819.50 over the previous year, resulting from additions and deductions as follows:—

Additions:—

Boston & Lowell, . . . . .	\$1,258,000 00
New York, New Haven & Hartford, . . . . .	99,819 50

Total additions to funded debt, . . . . . \$1,357,819 50

Deductions:—

Boston & Maine, . . . . .	\$143,000 00
Central Vermont, . . . . .	145,000 00
Hoosac Tunnel & Wilmington, . . . . .	2,000 00

Total deductions from funded debt, . . . . . \$290,000 00

Net additions to funded debt, . . . . . \$1,067,819 50

## INCOME AND EXPENDITURES.

The total income of the companies from all sources, for the year ending June 30, 1916, was \$173,585,420.78, and the total expenditures, including dividends declared, were \$163,123,489.79, showing a net surplus for the year of \$10,461,930.99 to be added to the surplus account.

The sources of total income, and the amount derived from each source as compared with the previous year, were as follows:—

*Total Income, 1915 and 1916.*

INCOME.	1915.	1916.	Increase.
Total railway operating revenues, . . .	\$133,836,934 63	\$154,018,956 20	\$20,182,021 57
Miscellaneous operating income, . . .	1,193 34	10,601 65	9,408 31
Income from lease of road, . . .	12,513,403 88	12,367,046 64	146,357 24*
Nonoperating income, . . .	6,408,219 65	7,188,816 29	780,596 64
Gross income, . . .	\$152,759,751 50	\$173,585,420 78	\$20,825,669 28

\* Decrease.

The items of the total expenditures for the year 1915 and also those for the year 1916, with the surplus for the years 1915 and 1916, and the increase or decrease in each item as compared with the previous year, are shown in the following table:—

*Total Expenditures, 1915 and 1916.*

EXPENDITURES.	1915.	1916.	Increase.
Railway operating expenses, . . .	\$95,884,771 04	\$104,553,722 17	\$8,668,951 13
Railway tax accruals, . . .	5,668,280 12	5,841,699 22	173,419 10
Rents for lease of road, . . .	15,257,236 84	15,219,717 86	37,518 98*
Hire and rent of equipment, . . .	3,489,978 27	6,666,466 53	3,176,488 26
Joint facilities and other rents, . . .	3,339,830 82	3,552,776 89	212,946 07
Interest on funded and other debts, . . .	18,535,743 58	18,480,668 67	55,074 91*
Other deductions from income, . . .	1,223,250 92	1,306,152 20	82,901 28
Dividend appropriations of income, . . .	7,292,239 75	7,296,610 00	4,370 25
Other appropriations of income, . . .	179,309 92	205,676 25	26,366 33
Gross expenditures, . . .	\$150,870,641 26	\$163,123,489 79	\$12,252,848 53
Surplus for the year, . . .	1,889,110 24	10,461,930 99	8,572,820 75

\* Decrease.



## OPERATING REVENUES AND EXPENSES.

The operating revenues and expenses of operation for the past year are classified, and compared with those of the previous year, in the following table: —

*Operating Revenues and Expenses, 1915 and 1916.*

REVENUES AND EXPENSES.	1915.	1916.	Increase.
Freight revenue, . . . . .	\$69,664,515 55	\$83,781,742 47	\$14,117,226 92
Passenger revenue, . . . . .	50,326,579 00	52,897,602 83	2,571,023 83
Excess baggage revenue, . . . . .	284,538 01	305,216 77	20,678 76
Sleeping, parlor and chair car revenue, . .	12,596 56	12,632 08	35 50
Mail revenue, . . . . .	1,747,252 61	1,733,067 15	14,185 46*
Express revenue, . . . . .	4,642,633 12	5,947,228 29	1,304,595 17
Milk revenue, . . . . .	848,317 50	1,071,965 81	223,648 31
Other rail-line revenue, . . . . .	1,662,994 95	2,247,819 49	584,824 54
Total rail-line transportation revenue, .	\$129,189,427 32	\$147,997,274 89	\$18,807,847 57
Water-line transportation revenue, . . .	17,124 86	14,405 85	2,719 01*
Incidental operating revenue, . . . . .	3,918,734 91	5,257,322 94	1,338,588 03
Joint facility operating revenue, . . . .	711,647 54	749,952 52	38,304 98
Total railway operating revenue, . . .	\$133,836,934 63	\$154,018,956 20	\$20,182,021 57
Operating expenses, . . . . .	95,884,771 04	104,553,722 17	8,668,951 13
Net revenue from railway operations, . .	\$37,952,163 59	\$49,465,234 03	\$11,513,070 44

\* Decrease.

The next table shows the revenue from passenger service and freight service respectively, the other revenue from operation, and the total operating revenues on all of the roads for each of the past ten years: —

*Total Revenue from Operation for Ten Years, 1907-1916.*

YEARS.	Revenue from Passenger Service.	Revenue from Freight Service.	Other Revenue from Operation.	Total Operating Revenues.
1907, . . . . .	\$49,029,986	\$61,226,631	\$1,177,322	\$111,433,939
1908, . . . . .	49,038,322	55,687,041	1,584,123	106,309,486
1909, . . . . .	48,458,423	56,945,111	2,702,238	108,105,772
1910, . . . . .	52,995,871	64,070,157	3,074,965	120,140,993
1911, . . . . .	55,602,106	65,038,750	3,318,634	123,959,490
1912, . . . . .	57,142,152	68,266,492	3,665,667	129,074,311
1913, . . . . .	59,553,665	72,867,194	4,189,454	136,610,313
1914, . . . . .	58,984,655	69,992,980	4,251,698	133,229,333
1915, . . . . .	57,861,917	69,664,516	6,310,502	133,836,935
1916, . . . . .	61,967,713	83,781,742	8,269,501	154,018,956

*Ratio of Operating Expenses to Operating Revenues.*

The following table gives in like manner the total operating revenues, the operating expenses, the ratio of operating expenses to total operating revenues, and the net revenue from operation for all the companies for ten years:—

*Ratio of Operating Expenses to Total Operating Revenues, 1907-1916.*

YEARS.	Total Operating Revenues.	Operating Expenses.	Ratio of Operating Expenses to Operating Revenues.	Net Revenue from Operation.
1907, . . . . .	\$111,433,938	\$80,912,538	72.61	\$30,521,400
1908, . . . . .	106,309,486	80,956,652	76.15	25,352,834
1909, . . . . .	108,105,772	75,048,921	69.42	33,056,851
1910, . . . . .	120,140,993	82,037,516	68.31	38,073,477
1911, . . . . .	123,959,490	89,525,902	72.22	34,433,588
1912, . . . . .	129,074,311	90,131,969	69.83	38,942,342
1913, . . . . .	136,610,313	99,565,217	72.88	37,045,096
1914, . . . . .	133,229,333	101,633,343	76.28	31,595,990
1915, . . . . .	133,836,935	95,884,771	71.64	37,952,164
1916, . . . . .	154,018,956	104,553,722	67.88	49,465,234

# INCOME AND EXPENDITURES OF THE THREE LEADING RAILROADS IN THE COMMONWEALTH.

The following table shows in detail the revenues, income and expenditures of the three leading railroads of the Commonwealth as returned for the year ending June 30, 1916:—

## *Revenues, Income and Expenditures for the Year Ending June 30, 1916.*

	Boston & Albany. <sup>1</sup>	Boston & Maine.	New York, New Haven & Hartford.
Revenue from freight, . . . . .	\$11,041,845 41	\$31,963,439 26	\$37,448,020 64
Revenue from passengers, . . . . .	6,306,511 55	15,028,316 94	29,620,567 21
Revenue from other transportation, . . . . .	1,719,704 95	3,621,174 58	5,726,011 46
Revenue from incidental operations, . . . . .	800,831 78	1,459,838 66	2,840,076 21
Revenue from joint facility, . . . . .	70,366 68	2,608 45	676,977 39
Total railway operating revenues, . . . . .	\$19,939,260 37	\$52,075,427 89	\$76,311,652 91
Net revenue from miscellaneous operations, . . . . .	—	—	10,601 65
Nonoperating income, . . . . .	391,457 64	1,170,715 39	6,459,230 33
Total income, . . . . .	\$20,330,718 01	\$53,246,143 28	\$82,781,484 89
Operating expenses, . . . . .	\$12,948,758 20	\$36,197,653 47	\$51,078,357 81
Percent of operating expenses to operating revenues, . . . . .	64.94	69.51	66.93
Taxes, . . . . .	773,073 26	1,986,267 31	2,856,254 61
Hire of equipment, . . . . .	1,431,093 07	2,392,807 47	2,700,888 04
Rent of leased lines, . . . . .	3,139,735 50	5,626,028 77	6,156,401 09
Joint facility and other rents, . . . . .	207,759 61	167,284 56	3,137,856 72
Interest on funded debt, . . . . .	—	1,729,547 50	9,343,382 08
Interest on unfunded debt, . . . . .	—	970,497 25	1,964,519 29
Other deductions, . . . . .	1,989 77	2,624 23	1,228,068 39
Total deductions, . . . . .	\$18,502,409 41	\$49,073,015 56	\$78,465,728 03
Net income, . . . . .	\$1,828,308 60	\$4,173,127 72	\$4,315,756 86
Income applied to sinking and other reserve funds, . . . . .	—	\$107,436 63	—
Dividend appropriations of income, . . . . .	—	—	—
Rate per cent, . . . . .	—	—	—
Other deductions, . . . . .	—	—	—
Total appropriations of income, . . . . .	—	\$107,436 63	—
Surplus for the year, . . . . .	\$1,828,308 60	\$4,065,691 09	\$4,315,756 86

<sup>1</sup> Operations of the New York Central Railroad, lessee.

The miles of track owned, and also track operated June 30, 1916, of the three leading railroads of the Commonwealth, are stated in detail in the following table:—

*Miles of Track Owned and Operated June 30, 1916.*

	Boston & Albany (Miles). <sup>1</sup>	Boston & Maine (Miles).	New York, New Haven & Hartford (Miles).
<i>Track Owned.</i>			
Main line and branches, . . . . .	303.63	725.43	1,193.52
Second track, . . . . .	218.83	235.43	449.14
Third track, . . . . .	81.75	2.56	62.57
Fourth track, . . . . .	24.84	—	61.68
Side track, . . . . .	374.27	417.36	821.38
Total track owned, . . . . .	1,003.32	1,380.78	2,588.29
<i>Track Operated.</i>			
Main line and branches, . . . . .	393.97	2,298.49	2,004.84
Second track, . . . . .	218.83	590.62	831.43
Third track, . . . . .	81.75	8.39	130.25
Fourth track, . . . . .	24.84	2.02	129.19
Fifth track, . . . . .	—	—	9.66
Sixth track, . . . . .	—	—	9.63
Side track, . . . . .	402.03	1,360.98	1,484.84
Total track operated, . . . . .	1,121.42	4,260.50	4,599.84

<sup>1</sup> Operated by the New York Central Railroad, lessee.

*Revenues and Expenses per Mile of Road Operated.*

The average operating revenues and expenses of operation, and the net operating revenue per mile of road operated by all the companies for the past ten years and by the three leading companies for the last year, are shown in the following tables:—

*Revenues and Expenses per Mile of Road Operated, 1907–1916.*

YEARS.	Total Operating Revenues.	Operating Ex- penses.	Net Operating Revenue.	YEARS.	Total Operating Revenues.	Operating Ex- penses.	Net Operating Revenue.
1907, . . . .	\$22,623	\$16,427	\$6,196	1912, . . . .	\$25,978	\$18,140	\$7,838
1908, . . . .	21,602	16,450	5,152	1913, . . . .	27,301	19,897	7,403
1909, . . . .	21,979	15,258	6,721	1914, . . . .	27,229	20,772	6,457
1910, . . . .	24,668	16,850	7,818	1915, . . . .	25,222	18,070	7,152
1911, . . . .	25,207	18,205	7,002	1916, . . . .	29,039	19,713	9,326



*Operating Revenues and Expenses per Mile of Road Operated (Three Roads)  
in 1916.*

RAILROAD COMPANIES.	Total Operating Revenues.	Operating Expenses.	Net Operating Revenue.
Boston & Albany, . . . . .	\$50,611	\$32,867	\$17,744
Boston & Maine, . . . . .	22,656	15,748	6,908
New York, New Haven & Hartford, . . . .	38,064	25,478	12,586

*Operating Revenues and Expenses per Revenue-Train Mile.*

The average operating revenues and expenses of operation, and the net operating revenue, per total mile run by trains earning revenue, on all the roads, for each of the last ten years, are stated in the following table:—

*Operating Revenues and Expenses per Total Revenue-Train Mile 1907–1916.*

YEARS.	Total Operating Revenues.	Operating Ex- penses.	Net Operating Revenue.	YEARS.	Total Operating Revenues.	Operating Ex- penses.	Net Operating Revenue.
1907, . . . . .	\$2.024	\$1.470	\$0.554	1912, . . . . .	\$2.338	\$1.633	\$0.705
1908, . . . . .	2.002	1.525	.477	1913, . . . . .	2.400	1.749	.650
1909, . . . . .	2.112	1.466	.646	1914, . . . . .	2.483	1.894	.589
1910, . . . . .	2.235	1.527	.708	1915, . . . . .	2.656	1.903	.753
1911, . . . . .	2.246	1.622	.624	1916, . . . . .	2.911	1.976	.935

*Operating Revenues and Expenses per Revenue-Train Mile (Three Roads)  
in 1916.*

RAILROAD COMPANIES.	Gross Passenger Revenue per Passenger- Train Mile.	Gross Freight Revenue per Freight- Train Mile.	PER TOTAL REVENUE-TRAIN MILE.		
			Total Operating Revenues.	Operating Expenses.	Net Operating Revenue.
Boston & Albany, . . . . .	\$1.892	\$3.029	\$2.621	\$1.702	\$0.919
Boston & Maine, . . . . .	1.549	3.913	2.663	1.851	.812
New York, New Haven & Hart- ford.	2.250	5.101	3.385	2.266	1.119

The average gross passenger revenue per passenger-train mile and the gross freight revenue per freight-train mile, and the total operating revenues, expenses and net operating revenue per total revenue-train mile of the three leading railroads of the Commonwealth are given for the last year in the preceding table.

The ratio of operating expenses to operating revenues of the three leading railroads of the Commonwealth for the year ending June 30, 1916, is given in detail in the following table:—

*Ratio of Operating Expenses to Operating Revenues (Three Roads) in 1916.*

	Boston & Albany.	Boston & Maine.	New York, New Haven & Hartford.
Maintenance of way and structures, . . . . .	10.48	11.50	11.50
Maintenance of equipment, . . . . .	11.60	12.65	14.23
Traffic, . . . . .	1.19	.81	.62
Transportation, . . . . .	37.37	41.78	37.17
Miscellaneous operations, . . . . .	1.90	.39	1.11
General expenses, . . . . .	2.40	2.38	2.30
Total operating expenses, . . . . .	64.94	69.51	66.93

*Operating Expenses per Revenue-Train Mile (Three Roads) in 1916.*

	Boston & Albany.	Boston & Maine.	New York, New Haven & Hartford.
Maintenance of way and structures, . . . . .	\$0 28	\$0 31	\$0 39
Maintenance of equipment, . . . . .	30	34	48
Traffic, . . . . .	03	02	02
Transportation, . . . . .	98	1 12	1 26
Miscellaneous operations, . . . . .	05	01	03
General expenses, . . . . .	06	06	08
Total operating expenses per revenue-train mile,	\$1 70	\$1 86	\$2 26

The next table gives the cost of repairs per locomotive and per car on each of the same three roads the last year:—

*Cost of Repairs per Locomotive and per Car (Three Roads) in 1916.*

RAILROAD COMPANIES.	Per Locomotive.	Per Passenger Car. <sup>1</sup>	Per Freight Car.
Boston & Albany, . . . . .	\$2,246 39	\$687 60	\$44 22
Boston & Maine, . . . . .	2,259 91	317 12	88 30
New York, New Haven & Hartford, . . .	2,270 74	633 55	83 29

<sup>1</sup> Including baggage, express and postal cars.

## VOLUME OF TRAFFIC.

*Train Mileage.*

The total number of miles run by passenger trains the last year, on the roads of all the companies, was 32,585,706 — an increase of 304,642 miles over the previous year; by freight trains, 19,659,405 — an increase of 2,171,130 miles; and by all other trains, 666,461 — an increase of 53,313 miles, making the total number of miles run by trains of all kinds, 52,911,572 — an increase of 2,529,085 miles over the previous year.

The mileage of passenger, freight and other trains, for each of the last ten years, is stated in the following table: —

*Train Mileage for Ten Years, 1907-1916.*

YEARS.	MILES RUN BY —			Total Train Mileage.
	Passenger Trains.	Freight Trains.	Other Trains.	
1907, . . . . .	33,302,026	21,330,520	410,173	55,042,719
1908, . . . . .	33,319,361	19,457,544	323,218	53,100,123
1909, . . . . .	31,992,621	18,750,030	446,905	51,189,586
1910, . . . . .	33,304,522	19,888,151	558,544	53,751,217
1911, . . . . .	34,257,020	20,372,908	567,637	55,197,565
1912, . . . . .	33,947,537	20,728,250	614,673	55,290,460
1913, . . . . .	34,819,721	21,637,543	642,774	57,100,038
1914, . . . . .	33,798,115	19,260,909	601,513	53,660,537
1915, . . . . .	32,281,064	17,488,275	613,148	50,382,487
1916, . . . . .	32,585,706	19,659,405	666,461	52,911,572

NOTE. — The passenger and freight-train mileage for the years 1907 to 1914, inclusive, has been reclassified on the basis of actual passenger and freight-train miles in accordance with requirements of the 1915 report.

The next table shows the revenue-train mileage on each of the three leading railroads of the Commonwealth for the last year:—

*Revenue-Train Mileage (Three Roads) in 1916.*

RAILROAD COMPANIES.	MILES RUN BY —			Total Revenue-Train Mileage.
	Passenger Trains.	Freight Trains.	Mixed and Special Trains.	
Boston & Albany, . . . . .	3,960,475	3,543,260	104,034	7,607,769
Boston & Maine, . . . . .	11,243,635	7,926,689	285,500	19,455,824
New York, New Haven & Hartford,	15,157,555	7,181,342	204,267	22,543,164

*Passenger Traffic.*

The total number of passengers carried the last year was 158,028,968 — a decrease of 1,256,217 passengers from the previous year. Each passenger on the steam roads travelled on the average a distance of 17.93 miles, making the total passenger mileage 2,833,540,976, an increase of 55,145,633 over the previous year.

The total volume of passenger traffic for each of the last ten years is shown in the following table:—

*Passenger Mileage for Ten Years, 1907–1916.*

YEARS.	Passengers Carried.	Average Journey (Miles).	Total Passenger Mileage.	Average Number of Passengers per Train Mile.
1907, . . . . .	146,821,836 <sup>1</sup>	17.49 <sup>2</sup>	2,505,631,328 <sup>2</sup>	75 <sup>2</sup>
1908, . . . . .	144,844,546	17.58	2,546,160,478	76
1909, . . . . .	147,051,164	17.39	2,556,994,990	79
1910, . . . . .	160,769,201	17.23	2,771,121,457	83
1911, . . . . .	162,940,242	17.24	2,808,985,698	81
1912, . . . . .	166,006,254	17.30	2,871,940,251	84
1913, . . . . .	170,278,768	17.39	2,961,169,563	85
1914, . . . . .	168,251,728	17.59	2,959,488,989	87
1915, . . . . .	159,285,185	17.44	2,778,395,343	84
1916, . . . . .	158,028,968	17.93	2,833,540,976	85

<sup>1</sup> Includes 3,569,160 on electric street railways.

<sup>2</sup> Not including electric street railways.



The passenger mileage on the three leading railroads during the last year was as follows: —

*Passenger Mileage (Three Roads) in 1916.*

RAILROAD COMPANIES.	Passengers Carried.	Average Journey (Miles).	Total Passenger Mileage.	Average Number of Passengers per Train Mile.
Boston & Albany, . . . . .	11,666,001	28.13	328,112,411	81
Boston & Maine, . . . . .	42,518,745	18.78	798,694,644	70
New York, New Haven & Hartford,	82,246,385	19.10	1,571,060,117	102

*Freight Traffic.*

The total number of tons of freight hauled on all the roads the last year was 70,973,343 — an increase of 11,335,735 tons over the previous year. Each ton of freight was hauled on the average a distance of 100.04 miles, making the total freight mileage, 7,100,264,820 — an increase of 1,187,580,479 tons hauled one mile, over the previous year.

*Freight Mileage for Ten Years, 1907–1916.*

YEARS.	Tons of Freight Hauled.	Average Haul (Miles).	Total Freight Mileage.	Average Number of Tons of Freight per Train Mile.
1907, . . . . .	53,806,796	93.58	5,035,305,109	233
1908, . . . . .	47,251,469	99.25	4,689,724,439	238
1909, . . . . .	49,259,397	97.51	4,803,498,797	253
1910, . . . . .	55,786,434	97.41	5,433,908,081	273
1911, . . . . .	56,557,644	97.85	5,534,064,740	268
1912, . . . . .	59,288,347	98.57	5,843,933,729	277
1913, . . . . .	63,729,052	101.09	6,442,438,763	293
1914, . . . . .	60,661,003	99.66	6,045,226,122	308
1915, . . . . .	59,637,608	99.14	5,912,684,341	327
1916, . . . . .	70,973,343	100.04	7,100,264,820	350

The preceding table gives the total volume of freight traffic for each of the last ten years.

The next table gives the freight mileage on the three leading roads for the last year:—

*Freight Mileage (Three Roads) in 1916.*

RAILROAD COMPANIES.	Tons of Freight Hauled.	Average Haul (Miles).	Total Freight Mileage.	Average Number of Tons of Freight per Train Mile.
Boston & Albany, . . . .	11,319,339	120.88	1,368,269,306	375
Boston & Maine, . . . .	26,497,039	111.77	2,961,598,986	363
New York, New Haven & Hartford,	28,285,411	87.03	2,461,693,534	334

## FARES AND FREIGHTS.

### *Passenger Fares.*

The average passenger fare per mile on the Massachusetts railroads for each of the last thirty years, as ascertained from the annual returns to the Commission, is given in the following table:—

*Average Passenger Fare per Mile (All Massachusetts Roads) for 30 Years, 1887-1916.*

YEARS.	Fares.	YEARS.	Fares.	YEARS.	Fares.
	Cents.		Cents.		Cents.
1887, . . . .	1.85	1897, . . . .	1.80	1907, . . . .	1.65
1888, . . . .	1.90	1898, . . . .	1.78	1908, . . . .	1.63
1889, . . . .	1.87	1899, . . . .	1.77	1909, . . . .	1.64
1890, . . . .	1.82	1900, . . . .	1.75	1910, . . . .	1.65
1891, . . . .	1.83	1901, . . . .	1.75	1911, . . . .	1.72
1892, . . . .	1.83	1902, . . . .	1.73	1912, . . . .	1.73
1893, . . . .	1.83	1903, . . . .	1.73	1913, . . . .	1.74
1894, . . . .	1.80	1904, . . . .	1.72	1914, . . . .	1.72
1895, . . . .	1.78	1905, . . . .	1.70	1915, . . . .	1.81
1896, . . . .	1.79	1906, . . . .	1.70	1916, . . . .	1.87

The increase in the average passenger fare per mile during the year ending June 30, 1916, was due to an increase in fares granted by the Commission.

The following table gives the average passenger fares per mile on the *three* leading Massachusetts railroads, taken singly and

as a group, for the years 1900, 1908, and for each of the last four years, 1913 to 1916, inclusive:—

*Average Passenger Fare per Mile (Three Roads) in 1900, 1908 and 1913-1916.*

RAILROAD COMPANIES.	1900.	1908.	1913.	1914.	1915.	1916.
	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.
Boston & Albany, . . . .	1.75	1.77	1.82	1.81	1.85	1.92
Boston & Maine, . . . .	1.73	1.71	1.78	1.77	1.82	1.85
New York, New Haven & Hartford, .	1.78	1.59	1.74	1.71	1.83	1.89
All companies, . . . .	1.75	1.65	1.76	1.74	1.83	1.88

### *Freight Rates.*

In the tables which follow, the average rates per ton mile for the transportation of merchandise on the railroads making returns to the Commission are shown for the same years and intervals of years, for all of the roads and for the same group of roads, as in the preceding tables of passenger fares.

The first table gives the average freight rate per ton mile on all of the roads for each of the last thirty years:—

*Average Freight Rate per Ton Mile (All Massachusetts Roads) for 30 Years, 1887-1916.*

YEARS.	Rates.	YEARS.	Rates.	YEARS.	Rates.
	Cents.		Cents.		Cents.
1887, . . . .	1.62	1897, . . . .	1.25	1907, . . . .	1.19
1888, . . . .	1.55	1898, . . . .	1.22	1908, . . . .	1.17
1889, . . . .	1.50	1899, . . . .	1.18	1909, . . . .	1.19
1890, . . . .	1.45	1900, . . . .	1.22	1910, . . . .	1.18
1891, . . . .	1.42	1901, . . . .	1.20	1911, . . . .	1.17
1892, . . . .	1.36	1902, . . . .	1.24	1912, . . . .	1.17
1893, . . . .	1.39	1903, . . . .	1.23	1913, . . . .	1.13
1894, . . . .	1.33	1904, . . . .	1.27	1914, . . . .	1.16
1895, . . . .	1.28	1905, . . . .	1.14	1915, . . . .	1.18
1896, . . . .	1.28	1906, . . . .	1.23	1916, . . . .	1.18

The increase in the average rate per ton mile during the year ending June 30, 1916, was due to an increase in rates

granted by the Interstate Commerce Commission and the Public Service Commission of Massachusetts.

The following table shows the average rate per ton mile on the *three* leading railroads of the Commonwealth, taken singly and as a group, in 1900, 1908, and for each of the last four years, 1913 to 1916, inclusive:—

*Average Freight Rate per Ton Mile (Three Roads) in 1900, 1908 and 1913–1916.*

RAILROAD COMPANIES.	1900.	1908.	1913.	1914.	1915.	1916.
	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.
Boston & Albany, . . . . .	0.82	0.87	0.80	0.82	0.81	0.81
Boston & Maine, . . . . .	1.44	1.04	1.05	1.06	1.12	1.08
New York, New Haven & Hartford, . . . . .	1.45	1.42	1.35	1.42	1.43	1.53
All companies, . . . . .	1.31	1.15	1.13	1.15	1.18	1.19

### ROLLING STOCK.

The following table shows the amount of rolling stock (owned and leased) of all the companies, as returned at the end of each of the last seven years:—

*Schedule of Rolling Stock, 1910–1916.*

ROLLING STOCK.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
Locomotives, . . . . .	2,749	2,879	2,830	3,020	2,984	2,984	2,891
Passenger cars, . . . . .	4,126	4,249	4,449	4,172	4,179	3,758	3,852
Baggage, express and postal cars, . . . . .	770	763	805	789	794	904	871
Freight cars, . . . . .	63,382	67,084	66,134	67,604	66,775	69,810	68,745
Gravel cars, etc., . . . . .	3,101	3,218	3,049	3,213	3,770	3,218	3,207

### NUMBER OF EMPLOYEES.

The average number of persons employed during the last year by all the railroad companies making returns to the Commission was 69,301 — an increase of 4,123 over the previous year. The following table gives the average number of employees for each of the last ten years:—

*Average Number of Employees, 1907-1916.*

YEARS.	Number of Employees.	YEARS.	Number of Employees.
1907, . . . . .	68,370	1912, . . . . .	70,862
1908, . . . . .	67,435	1913, . . . . .	73,661
1909, . . . . .	64,725	1914, . . . . .	71,676
1910, . . . . .	69,798	1915, . . . . .	65,178
1911, . . . . .	70,719	1916, . . . . .	69,301

## SUMMARY OF RAILROAD ACCIDENTS.

The number of persons killed and injured in the operation of railroads in Massachusetts during the year ended June 30, 1916, as reported by the several companies, together with the number reported in each of the preceding ten years, is shown by the following table: —



*Number of Persons Killed and Injured on Railroads in Massachusetts, 1906-1916.*

YEAR ENDED JUNE 30.	PASSENGERS.		EMPLOYEES.		TRAVELLERS ON HIGHWAY AT GRADE CROSSINGS.		TRESPASSERS.		OTHER.		TOTAL.		
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Total.
1906, . . . . .	22	126	64	437	28	32	126	77	11	8	251	680	931
1907, . . . . .	8	87	96	716	22	23	158	61	16	19	300	906	1,206
1908, . . . . .	11	50	92	633	27	30	146	75	15	21	291	809	1,100
1909, . . . . .	11	123	74	367	22	13	131	64	12	12	250	579	829
1910, . . . . .	9	65	89	210	29	9	164	50	12	15	303	349	652
1911, . . . . .	11	52	87	181	25	29	162	48	18	21	303	331	634
1912, . . . . .	15	103	91	144	24	19	132	60	17	14	279	340	619
1913, . . . . .	14	167	97	205	23	19	175	71	10	20	319	482	801
1914, . . . . .	10	38	64	138	20	11	148	73	16	5	258	265	523
1915, . . . . .	10	48	45	102	26	18	138	67	13	13	252	248	480
Total, . . . . .	121	859	799	3,133	246	203	1,480	646	140	148	2,786	4,980	7,775
Average, . . . . .	12	86	80	313	25	20	148	65	14	15	279	499	778
1916, . . . . .	8	99	64	52	20	14	158	38	14	10	204	213	477

In addition to the foregoing, there were reported during the year 44 accidents which involved serious detention of passenger trains or damage to property, but resulted in no personal injuries.

The total number of persons killed and injured during the year ended June 30, 1916, namely, 477, shows a decrease of 3 from the aggregate number reported for the preceding fiscal year, and a decrease of 301 from the average number reported annually for the preceding ten years. Of the total number of casualties, 264 were fatal, as against 232 reported for the year ended June 30, 1915, and as against 279, the average number of fatalities reported annually for the preceding ten years; while 213 were not fatal, as against 248 reported during the year ended June 30, 1915, and as against an average of 499 for the preceding ten-year period.

The percentage of passengers, employees, travellers on highway at grade crossings, and trespassers killed and injured during the year ended June 30, 1916, to the total number of casualties, is shown by the following table:—

	Killed.	Injured.	Total.
Passengers, . . . . .	3.03	46.48	22.43
Employees, . . . . .	24.24	24.41	24.32
Travellers on highway at grade crossings, . .	7.58	6.57	7.13
Trespassers, . . . . .	59.85	17.84	41.09
Other, . . . . .	5.30	4.70	5.03
Total, . . . . .	100.00	100.00	100.00

### *Passengers.*

Eight passengers were killed and 99 injured during the year. All the fatalities to passengers were reported to have occurred as the result of their own imprudence or negligence. Of the number of passengers injured, namely, 99, 92 were reported as injured from causes beyond their control, while 7 were reported as injured through their own imprudence or negligence. The total number of passengers killed and injured during the preceding year was 10 and 48 respectively; the average number of passengers killed and injured annually during the years 1906-1915 was 12 and 86 respectively.

The character of accidents to passengers during the year ended June 30, 1916, is shown by the following:—

CHARACTER OF ACCIDENT.	Killed.	Injured.
Collision, . . . . .	—	78
Derailement, . . . . .	—	14
Falling, . . . . .	3	1
Crossing track, . . . . .	3	2
Getting on or off trains, cars, etc., . . . . .	2	3
Other, . . . . .	—	1
Total, . . . . .	8	99

The following table shows the ratio of passengers killed and injured to the total number of passengers carried and miles travelled by passengers on railroads in Massachusetts during the years ended June 30, 1915 and 1916:—

PASSENGERS CARRIED, ETC.	1915.	1916.
Number of passengers carried in Massachusetts, <sup>1</sup> . . .	127,428,148	126,423,174
Passenger miles travelled in Massachusetts, <sup>1</sup> . . .	2,222,716,274	2,266,832,761
Passengers <i>killed</i> by causes beyond their control, . . .	0	0
Ratio to total passengers carried, . . . . .	—	—
Ratio to total passenger miles travelled, . . . . .	—	—
Passengers <i>injured</i> by causes beyond their control, . . .	26	92
Ratio to total passengers carried, . . . . .	1 to 4,901,083	1 to 1,374,165
Ratio to total passenger miles travelled, . . . . .	1 to 85,489,087	1 to 24,748,182
Passengers <i>killed</i> by their own fault or want of care, . . .	10	8
Ratio to total passengers carried, . . . . .	1 to 12,742,815	1 to 15,802,897
Ratio to total passenger miles travelled, . . . . .	1 to 222,271,627	1 to 283,354,095
Passengers <i>injured</i> by their own fault or want of care, . . .	22	7
Ratio to total passengers carried, . . . . .	1 to 5,792,189	1 to 18,060,453
Ratio to total passenger miles travelled, . . . . .	1 to 101,032,558	1 to 323,833,252

<sup>1</sup> The total number of passengers carried and the total passenger miles travelled in Massachusetts are estimated to be about 80 per cent of the total number carried and travelled on the several roads, both in and out of the State.

*Employees.*

During the year 64 employees were killed and 52 were injured, as against 45 killed and 102 injured during the preceding twelve months. The average number of employees killed and injured annually during the preceding ten years was 80 and 313, respectively.

The number of employees killed and injured during the year ended June 30, 1916, classified by character of employment, is shown by the following:—

CHARACTER OF EMPLOYMENT.	1915.		1916.	
	Killed.	Injured.	Killed.	Injured.
Enginemen and firemen, . . .	2	9	1	5
Conductors and trainmen, . .	18	49	24	27
Trackmen and laborers, . . .	8	23	19	7
Switchmen, . . . . .	1	—	—	—
Stationmen, . . . . .	1	2	—	—
Signalmen, . . . . .	3	1	1	1
Crossingmen, . . . . .	2	1	5	—
Inspectors, . . . . .	3	4	2	—
Machinists, . . . . .	2	—	—	1
Freight handlers, . . . . .	1	4	2	1
Yardmen, . . . . .	—	—	1	3
Watchmen and janitors, . . .	1	—	1	—
Engine-house men, . . . . .	3	2	3	1
Car cleaners, . . . . .	—	2	1	3
Carpenters, painters, repairmen, .	—	3	3	1
Other, . . . . .	—	2	1	2
Total, . . . . .	45	102	64	52

The following table shows the character of accidents to employees during the year ended June 30, 1916:—

CHARACTER OF ACCIDENT.	1915.		1916.	
	Killed.	Injured.	Killed.	Injured.
Collision, . . . . .	1	3	1	8
Derailment, . . . . .	2	2	1	4
Overhead and side obstruction, . .	4	13	5	5
Coupling and uncoupling, . .	5	7	1	5
Falling, . . . . .	8	24	11	13
Engine accidents, . . . . .	—	4	—	—
Walking on or crossing tracks, . .	13	5	17	6
Getting on or off cars, trains, etc., .	2	7	5	4
Working on track, . . . . .	5	12	17	4
Other, . . . . .	5	25	6	3
Total, . . . . .	45	102	64	52

### *Grade Crossings.*

The number of travellers on highway killed at grade crossings during the year was 20, and the number injured 14, as against 26 killed and 18 injured during the preceding year.

Of the total number killed, 12 were killed at grade crossings protected by gates, flagmen or otherwise; 3 at unprotected crossings (including 1 person killed at a crossing ordinarily protected, but unprotected at the time of the accident), and 5 at private crossings.

Of the total number injured, namely, 14, 6 were injured at protected crossings; 7 at unprotected crossings (including 1 person injured at a crossing ordinarily protected, but unprotected at the time of the accident), and 1 at a private crossing.

The following table shows, for the year ended June 30, 1916, the number and character of accidents at grade crossings on the different railroads:—



*Accidents at Grade Crossings during the Year ended June 30, 1916.*

RAILROADS.	PROTECTED CROSSINGS.				UNPROTECTED CROSSINGS.				TOTAL.				AT PRIVATE CROSSINGS.	
	Num-ber.	Killed.	In-jured.	Ratio of Accidents to Crossings.	Num-ber.	Killed.	In-jured.	Ratio of Accidents to Crossings.	Num-ber.	Killed.	In-jured.	Ratio of Accidents to Crossings.	Killed.	In-jured.
Attleborough Branch, . . . .	-	-	-	-	15	-	-	-	15	-	-	-	-	-
Boston & Albany, . . . .	65	1	-	1 to 65	120	1	5	1 to 20	185	2	5	1 to 26	1	-
Boston & Maine, . . . .	511	5	1	1 to 85	200	1	-	1 to 200	711	6	1	1 to 102	3	1
Boston, Revere Beach & Lynn, . . . .	9	-	-	-	-	-	-	-	9	-	-	-	-	-
Grafton & Upton, . . . .	1	-	-	-	29	-	-	-	30	-	-	-	-	-
Hoosac Tunnel & Wilmington, . . . .	-	-	-	-	1	-	-	-	1	-	-	-	-	-
Nantucket, . . . .	5	-	-	-	8	-	-	-	13	-	-	-	-	-
New London Northern, . . . .	6	-	-	-	40	-	-	-	46	-	-	-	-	-
New York, New Haven & Hartford, . . . .	486	6	5	1 to 42	301	1	2	1 to 100	787	7	7	1 to 55	1	-
Totals for the year, . . . .	1,063	12	6	1 to 59	714	3 <sup>1</sup>	7 <sup>2</sup>	1 to 71	1,777	15	13	1 to 63	5 <sup>3</sup>	1 <sup>3</sup>
Totals for the year ending June 30, 1915, . . . .	1,060	21	15	1 to 29	721	5	3	1 to 90	1,781	26	18	1 to 40	-	-

<sup>1</sup> Includes 1 person killed at crossing ordinarily protected, but unprotected at time of accident.

<sup>2</sup> Includes 1 person injured at crossing ordinarily protected, but unprotected at time of accident.

<sup>3</sup> Unprotected.

*Trespassers.*

The total number of trespassers killed during the year ended June 30, 1916, was 158; the number of trespassers injured was 38. During the preceding year 138 trespassers were killed and 67 injured, while the average number killed and injured annually for the preceding ten years was 148 and 65 respectively.

The character of accidents to trespassers during the year ended June 30, 1916, is shown by the following:—

CHARACTER OF ACCIDENT.	Killed.	Injured.
Overhead or side obstruction, . . . . .	11	—
Falling, . . . . .	6	1
Walking on or crossing track, . . . . .	119	19
Getting on or off cars, trains, etc., . . . . .	9	14
Other, . . . . .	13	4
Total, . . . . .	158	38

*Other Persons.*

Nine persons were reported killed and 9 injured during the year, classified as follows:—

	Killed.	Injured.
Employees not on duty, . . . . .	1	2
Employees of contractors, consignees and consignors, . . . .	4	2
Employees of Pullman, express companies, etc., . . . . .	3	3
Employees of other railroad or railway companies, . . . . .	1	2
Total, . . . . .	9	9

In addition to the above, 5 persons were reported killed and 1 injured, whose proper classification in the reports of accidents was indeterminable.

## MILES OF RAILROADS OWNED AND OPERATED.

	Length of Line.	Second Track.	Third Track.	Fourth Track.	Side Track.	LENGTH COMPUTED AS SINGLE TRACK.	
						Total.	In Mass.
Attleboro Branch, .	3.72	-	-	-	1.42	5.14	5.14
Boston and Albany, .	393.97	218.83	81.75	24.84	402.03	1,121.42	962.16
Boston and Maine, .	2,298.49	590.62	8.39	2.02	1,360.98	4,260.50	1,974.99
Boston, Revere Beach & Lynn.	13.20	13.20	-	-	4.10	30.50	30.50
Central Vermont, .	536.40	6.20	-	-	168.10	710.70	77.94
Grafton and Upton, .	18.10	-	-	-	3.79	21.89	21.89
Hoosac Tunnel & Wil- mington.	24.00	-	-	-	5.06	29.06	8.87
Nantucket, . . .	9.12	-	-	-	.15	9.27	9.27
New York, New Haven & Hartford.	2,004.84	831.43	130.25	148.48 <sup>1</sup>	1,484.84	4,599.84	1,966.82
Union Freight, . .	2.30	.83	-	-	1.34	4.47	4.47
	5,304.14	1,661.11	220.39	175.34	3,431.81	10,792.79	5,062.05

<sup>1</sup> Including 19.29 miles of fifth and sixth track.

## ISSUES OF BONDS.

RAILROAD COMPANIES.	Date when Authorized.	Amount Authorized.
Boston & Lowell, . . . . .	January 19	\$1,250,000
Boston & Lowell, . . . . .	May 18	135,000
Grafton & Upton, . . . . .	December 30	250,000

## RAILWAY STATISTICS.

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Annual returns for the year ending June 30, 1916, have been received from fifty-three railway companies.

Returns have also been received from the receiver of the Norton & Taunton and the receivers of the Bristol County property (this property was sold to the Taunton & Pawtucket at a receivers' sale in 1904).

### OPERATION OF COMPANIES.

There were at the end of the year fifty-three existing companies; of this number, thirty-eight operated their railway and fifteen were operated under lease or contracts by other companies.

### RAILWAY MILEAGE.

#### *New Mileage.*

There was an increase during the past year in the mileage of the Massachusetts companies of 14.501 miles of street railway line, and an increase of 2.427 miles of second track, making a total increase of 16.928 miles of main track. There was also an increase of 4.370 miles of side track, making a total increase of 21.298 miles reckoned as single track.

#### *Mileage Owned.*

The Massachusetts companies now own 2,347.942 miles of street railway line, 525.953 miles of second main track and 194.874 miles of side track, making the total length of track owned, reckoned as single track, 3,068.769 miles. All the track owned is surface street railway track, with the exception of 13.680 miles of elevated line and 13.460 miles of elevated second track. Of the sidings, all are surface track, with the exception of 9.713 miles of elevated track. All the elevated track is located in the cities of Boston and Cambridge.

*Mileage Operated.*

The total miles of main track (including trackage rights) operated was 2,977.745, — an increase of 25.152 miles over the previous year.

The Bay State leases and operates the Nashua, located in New Hampshire, and the Newport and Fall River, located in Rhode Island, having a total mileage of 38.720 miles of main and second track. The Berkshire leases and operates The Vermont Company, having a mileage of main and second track of 26.950 miles, located in Vermont. The Massachusetts Northeastern owns, leases and operates 43.810 miles of main and second track, located in New Hampshire. Accordingly, 109.480 miles of main and second track are operated outside of this Commonwealth.

## STATISTICS.

The following compilations of statistics are from the returns of the several street railway companies to the Commission for the year ending June 30, 1916.

The following table gives the length of railway line and track and total reckoned as single track returned by the companies for the year ending June 30, 1916, as compared with the previous year: —

*Street Railway Mileage Owned, 1915 and 1916.*

MILEAGE OWNED.	1915.	1916.	Increase.
	Miles.	Miles.	Miles.
Length of railway line, . . . . .	2,333.441	2,347.942	14.501
Length of second track, . . . . .	523.526	525.953	2.427
Total length of main line, . . . . .	2,856.967	2,873.895	16.928
Length of side track, . . . . .	190.504	194.874	4.370
Total reckoned as single track, . . . . .	3,047.471	3,068.769	21.298

## COMPARATIVE GENERAL BALANCE SHEET.

In any examination for purposes of comparison between the report here following and reports prior to 1914, it must be distinctly understood that by reason of the adoption by the Commission, under authority of law, of the form of return prescribed by the Interstate Commerce Commission, the return



now adopted differs substantially in principle from the return formerly in use under authority of the Commission. The assets and liabilities in the comparative general balance sheet of the companies, as returned June 30, 1916, have been tabulated and the increase or decrease in each class as compared with 1915 appears in the two following tables:—

*Assets, June 30, 1915 and 1916.*

ASSETS.	1915.	1916.	Increase.
Cost of railway, . . . . .	\$113,979,718 16	\$115,588,368 76	\$1,608,650 60
Cost of equipment, . . . . .	38,197,773 27	38,546,972 22	349,198 95
Cost of land, buildings, etc., . . . . .	48,548,427 57	49,164,820 73	616,393 16
Cost of other permanent investments, . . . . .	1,844,128 61	1,896,434 58	52,305 97
Total cost of permanent investments, . . . . .	\$202,570,047 61	\$205,196,596 29	\$2,626,548 68
Sinking funds, . . . . .	265,270 87	228,831 34	36,439 53*
Miscellaneous physical property, . . . . .	1,470,796 54	1,372,911 10	97,885 44*
Investments, . . . . .	2,287,877 58	2,375,124 97	87,247 39
Current assets, . . . . .	11,153,352 03	13,141,327 35	1,987,975 32
Deferred assets, . . . . .	1,007,589 65	1,009,640 28	2,050 63
Unadjusted debits, . . . . .	2,788,868 04	3,369,158 19	580,290 15
Grand total, . . . . .	\$221,543,802 32	\$226,693,589 52	\$5,149,787 20

\* Decrease.

*Liabilities, June 30, 1915 and 1916.*

LIABILITIES.	1915.	1916.	Increase.
Capital stock, common, . . . . .	\$88,283,475 00	\$91,010,175 00	\$2,726,700 00
Capital stock, preferred, . . . . .	10,747,800 00	11,483,500 00	735,700 00
Total capital stock, . . . . .	\$99,031,275 00	\$102,493,675 00	\$3,462,400 00
Stock liability for conversion, . . . . .	—	—	—
Premium on capital stock, <sup>1</sup> . . . . .	6,564,951 54	6,659,611 54	94,660 00
Funded debt, . . . . .	87,717,700 00	91,834,700 00	4,117,000 00
Non-negotiable debt to affiliated companies, . . . . .	1,256,983 66	1,240,741 14	16,242 52*
Current liabilities, . . . . .	20,573,401 24	17,784,609 45	2,788,791 79*
Deferred liabilities, . . . . .	419,064 48	425,662 38	6,597 90
Unadjusted credits, . . . . .	5,561,279 13	6,061,672 51	500,393 38
Appropriated surplus, . . . . .	293,701 39	261,412 81	32,288 58*
Profit and loss, . . . . .	125,445 88	68,495 31d	193,941 19*
Grand total, . . . . .	\$221,543,802 32	\$226,693,589 52	\$5,149,787 20

\* Decrease.

d Deficit.

The gross assets, the gross liabilities (including capital stock) and the surplus of the companies, with the percentage of surplus to capital stock, at the end of each of the last nine years and of the nine months ending June 30, 1910, are shown in the following table:—

*Gross Assets, Liabilities and Surplus, 1907-1916.*

YEARS.	Gross Assets.	Gross Liabilities.	Surplus.	Percentage of Surplus to Capital.
1907, . . . . .	\$161,297,914	\$153,847,904	\$7,450,010 <sup>1</sup>	10.17
1908, . . . . .	170,154,909	162,034,970	8,119,929 <sup>1</sup>	10.86
1909, . . . . .	177,745,988	168,628,151	9,117,837 <sup>1</sup>	11.29
1910, <sup>2</sup> . . . . .	185,456,188	175,470,489	9,985,699 <sup>1</sup>	11.84
1911, . . . . .	191,791,508	180,368,094	11,423,414 <sup>1</sup>	13.19
1912, . . . . .	205,065,129	193,660,069	11,405,060 <sup>1</sup>	12.80
1913, . . . . .	216,022,752	205,149,783	10,872,969 <sup>1</sup>	11.18
1914, . . . . .	217,960,080	206,974,502	10,985,578 <sup>1</sup>	11.19
1915, . . . . .	221,543,802	221,418,356	125,446 <sup>3</sup>	00.12
1916, . . . . .	226,693,589	226,762,084	68,495 <sup>d</sup>	00.07 <sup>d</sup>

<sup>1</sup> Includes "premiums on sales of stock and bonds" and "sinking and other special funds."

<sup>2</sup> For nine months ending June 30, 1910.

<sup>3</sup> The apparent discrepancy in the surplus for the year 1915 is due to a change in the classification of accounts. Premiums on sales of stock and bonds sinking and other special funds now appear in separate accounts.

<sup>d</sup> Deficit.

### CAPITAL STOCK AND DIVIDENDS.

The aggregate capital stock of the fifty-three companies, June 30, 1916, was \$102,493,675.00, — an increase of \$3,462,-400.00 over the preceding year.

#### *Dividends.*

The total amount of dividends declared the past year was \$4,080,572.49.

Thirty-two corporations declared dividends varying in rate from  $\frac{1}{2}$  to 10 per cent; the following table gives the name of the dividend paying companies, the rate per cent, and amount of dividend declared:—

NAME OF COMPANY.	RATE PER CENT.		Amount of Dividend Declared.
	Common.	Preferred.	
Bay State, . . . . .	$\frac{1}{2}$	6	\$267,502 00
Boston & Chelsea, . . . . .	6	-	7,260 00
Boston Elevated, . . . . .	5	-	1,193,970 00
Boston & Revere Electric, . . . . .	5	-	2,500 00
Boston & Worcester, . . . . .	$3\frac{3}{4}$	6	99,769 50
Brockton & Plymouth, . . . . .	-	6	6,600 00
Connecticut Valley, . . . . .	$\frac{3}{4}$	6	10,947 00
East Middlesex, . . . . .	10	-	29,770 00
East Taunton, . . . . .	5	-	4,763 75
Fitchburg & Leominster, . . . . .	6	-	27,000 00
Holyoke, . . . . .	6	-	80,520 00
Linwood, . . . . .	6	-	720 00
Lowell & Fitchburg, . . . . .	1	-	2,750 00
Medway & Dedham, . . . . .	4	-	2,600 00
Middlesex & Boston, . . . . .	$3\frac{1}{4}$	-	64,577 50
Milford & Uxbridge, . . . . .	5	6	28,000 00
Mount Tom, . . . . .	6	-	6,000 00
Nahant & Lynn, . . . . .	7	-	7,000 00
Newtonville & Watertown, . . . . .	$7\frac{20}{100}$	-	3,600 00
Northampton, . . . . .	5	-	42,560 00
North End, . . . . .	$3\frac{3}{4}$	-	4,125 00
Northern Massachusetts, . . . . .	-	6	9,000 00
Shelburne Falls & Colrain, . . . . .	5	-	2,500-00
Somerville, . . . . .	6	-	9,180 00
Springfield, . . . . .	$6\frac{1}{2}$	-	274,157 50
Union, . . . . .	8	-	130,000 00
Webster & Dudley, . . . . .	5	-	2,500 00
West End, . . . . .	7	8	1,453,160 50
Winnisimmet, . . . . .	6	-	3,000 00
Worcester Consolidated, . . . . .	5	-	300,950 00
Worcester & Shrewsbury Railroad, . . . . .	$7\frac{2}{100}$	-	2,649 74
Worcester & Shrewsbury Street Railway, . . . . .	5	-	1,000 00
			\$4,080,572 49

*Capital Stock, Net Income and Dividends, 1907-1916.*

YEARS.	Capital Stock.	Net Divisible Income.	Dividends Declared.	Percentage on Total Capital Stock.
1907, . . . . .	\$73,280,155	\$4,125,185	\$3,721,388	5.08
1908, . . . . .	74,737,505	4,094,977	3,950,965	5.29
1909, . . . . .	80,728,880	4,527,547	4,120,223	5.10
1910, <sup>1</sup> . . . . .	84,345,065	2,600,375	2,767,315	3.28
1911, . . . . .	86,639,175	5,548,479	4,788,907	5.52
1912, . . . . .	89,118,975	4,975,801	4,916,371	5.52
1913, . . . . .	97,284,375	4,901,291	5,031,728	5.17
1914, . . . . .	98,194,775	5,208,407	5,109,369	5.20
1915, . . . . .	99,031,275	4,564,342	4,612,020	4.66
1916, . . . . .	102,493,675	4,251,258	4,080,572	3.98

<sup>1</sup> For nine months ending June 30, 1910.

## FUNDED AND FLOATING DEBT.

The funded debt of the companies, June 30, 1916, was \$91,-834,700.00, — an increase of \$4,117,000.00 over the preceding year.

*Floating Debt.*

The total unfunded debt was \$25,512,685.48, — a decrease of \$2,298,043.03.

The gross debt, funded and unfunded, was \$117,347,385.48, — an increase of \$1,818,956.97.

The net debt (the gross debt less \$13,141,327.35 of cash and current assets) was \$104,206,058.13, — a decrease of \$169,-018.35.

The funded debt, unfunded debt, gross debt, cash and current assets, and net debt, at the end of each of the last nine years and of the nine months ending June 30, 1910, are shown in the following table: —

*Funded, Unfunded, Gross and Net Debt, 1907-1916.*

YEARS.	Funded Debt.	Unfunded Debt.	Gross Debt.	Cash and Current Assets.	Net Debt. <sup>1</sup>
1907, . . . . .	\$59,339,500	\$21,228,249	\$80,567,749	\$5,855,412	\$74,712,337
1908, . . . . .	66,348,500	20,948,965	87,297,465	8,170,683	79,126,782
1909, . . . . .	68,078,000	19,821,271	87,899,271	11,959,339	75,939,932
1910, <sup>2</sup> . . . . .	67,762,000	23,363,424	91,125,424	8,785,108	82,340,316
1911, . . . . .	71,508,700	22,220,219	93,728,919	8,231,929	85,496,990
1912, . . . . .	77,706,700	26,834,394	104,541,094	7,939,172	96,601,922
1913, . . . . .	85,615,700	22,249,708	107,865,408	10,795,460	97,069,948
1914, . . . . .	86,575,700	22,204,027	108,779,727	8,189,039	100,590,688
1915, . . . . .	87,717,700	27,810,729	115,528,429	11,153,352	104,375,077
1916, . . . . .	91,834,700	25,512,685	117,347,385	13,141,327	104,206,058

<sup>1</sup> Gross debt less cash and current assets.<sup>2</sup> For nine months ending June 30, 1910.

*Capital Investment.*

The total capital investment (capital stock, premiums and funded debt) of the street railway companies of the state on June 30, 1916, was \$200,987,986.54, — an increase of \$7,674,-060.00 for the year.

## COST AND CAPITAL INVESTMENT PER MILE.

The following table shows the cost per mile of main track (including the cost but not the length of side track) of road, equipment, land and buildings and other property of each of the fifty-three street railways for the year ending June 30, 1916: —

*Cost and Capitalization per Mile of Main Track (including First and Second Track).*

RAILROAD COMPANIES.	Road.	Equip- ment.	Land and Build- ings.	Other Prop- erty.	Total.	Capital- ization per Mile of Main Track.
Bay State, . . . . .	\$30,976	\$11,316	\$10,774	\$459	\$53,525	\$55,919
Berkshire, . . . . .	58,204	6,223	16,312	1,511	82,250	56,550
Blue Hill, . . . . .	22,551	7,260	5,846	—	35,657	29,730
Boston & Chelsea, . . . .	27,689	—	—	—	27,689	27,689
Boston Elevated, . . . .	831,755	96,466	348,785	5,553	1,282,559	1,337,648
Boston & Revere Electric, .	19,528	2,624	6,950	—	28,802	26,455
Boston & Worcester, . . .	42,848	9,897	11,879	—	64,624	61,493
Bristol & Norfolk, . . . .	22,788	1,425	1,076	968	26,257	27,441
Brockton & Plymouth, . .	17,824	4,810	10,351	1,281	34,266	30,163
Concord, Maynard & Hudson, .	18,155	5,129	6,488	—	29,772	26,102
Connecticut Valley, . . . .	20,745	4,906	2,679	100	28,430	26,746
Conway Electric, . . . . .	12,648	2,919	23,824	—	39,391	33,841
East Middlesex, . . . . .	17,805	5,276	3,032	11	26,124	26,755
East Taunton, . . . . .	14,047	2,936	1,081	—	18,064	13,569
Fitchburg & Leominster, . .	22,982	6,782	7,876	2,983	40,623	21,778
Holyoke, . . . . .	20,205	9,557	14,009	1,143	44,914	42,750
Interstate Consolidated, . .	19,975	30	2,674	—	22,679	11,411
Linwood, . . . . .	15,588	34,412	—	—	50,000	16,000
Lowell & Fitchburg, . . . .	30,715	2,962	1,729	—	35,406	31,197
Martha's Vineyard, . . . .	4,655	11,513	4,552	—	20,720	7,272
Massachusetts Northeastern, .	19,877	5,295	3,211	1,418	29,801	26,512



*Cost and Capitalization per Mile of Main Track, etc. — Concluded.*

RAILROAD COMPANIES.	Road.	Equip- ment.	Land and Build- ings.	Other Prop- erty.	Total.	Capital- ization per Mile of Main Track.
Medway & Dedham, . . .	\$2,391	\$590	\$240	—	\$3,221	\$3,221
Middlesex & Boston, . . .	23,194	10,111	7,027	—	40,332	33,016
Milford, Attleborough & Woon- socket.	14,184	3,814	3,144	\$1,004	22,146	21,549
Milford & Uxbridge, . . .	17,903	6,764	6,839	872	32,378	30,219
Mount Tom, . . . . .	64,685	5,444	39,982	—	110,111	111,111
Nahant & Lynn, . . . . .	32,685	9,404	4,908	—	46,997	31,056
New Bedford & Onset, . . .	18,360	2,924	5,315	1,060	27,659	23,891
Newtonville & Watertown, .	25,034	—	—	—	25,034	11,545
Norfolk & Bristol, . . . .	13,746	4,505	4,856	—	23,107	19,401
Northampton, . . . . .	18,552	9,296	8,739	83	36,670	35,303
North End, . . . . .	20,116	10,281	2,738	—	33,135	22,022
Northern Massachusetts, . .	17,892	5,316	3,003	941	27,152	22,271
Norton & Taunton, . . . .	17,536	21	2,385	—	19,942	20,715
Norwood, Canton & Sharon, .	8,105	1,676	653	—	10,434	10,291
Oak Bluffs, . . . . .	7,184	—	697	—	7,881	9,506
Plymouth & Sandwich, . . .	31,593	1,651	2,256	164	35,664	16,145
Point Shirley, . . . . .	11,083	3,877	2,458	—	17,418	20,833
Providence & Fall River, . .	23,635	9,796	4,511	—	37,942	32,702
Shelburne Falls & Colrain, .	14,865	3,179	4,877	—	22,921	20,964
Somerville, . . . . .	19,666	—	—	—	19,666	19,666
Springfield, . . . . .	27,298	8,965	8,457	287	45,007	41,446
Taunton & Pawtucket, . . .	12,170	4,925	3,303	—	20,398	18,239
Union, . . . . .	23,993	11,993	19,408	1,904	57,298	45,988
Ware & Brookfield, . . . .	12,266	3,001	1,712	—	17,379	20,068
Webster & Dudley, . . . .	24,025	2,429	1,512	—	27,966	14,981
West End, . . . . .	38,297	35,031	33,194	802	107,324	111,448
Winnisimmet, . . . . .	24,038	—	—	24	24,062	24,038
Worcester Consolidated, . . .	28,116	11,766	12,998	318	53,198	50,396
Worcester & Shrewsbury Rail- road.	26,223	19,523	—	—	45,746	21,787
Worcester & Shrewsbury Street Railway.	27,529	19,530	—	—	47,059	47,059
Worcester & Warren, . . . .	6,253	700	1,326	526	8,805	5,406
Worcester & Webster, . . . .	17,655	5,800	8,730	—	32,185	19,531
Average, 53 railways, . . .	\$40,220	\$13,413	\$17,107	\$660	\$71,400	\$69,935
Average, excluding Boston Ele- vated.	\$29,118	\$12,248	\$12,455	\$591	\$54,412	\$52,111

The average cost of the street railways of the state, per mile of main track (including the cost but not the length of side track), as returned by the companies June 30, 1916, was \$40,-220.11 for construction; \$13,412.79 for equipment; and \$17,-767.26 for lands, buildings (including power plants), parks and other permanent property, — making a total average cost of \$71,400.16 per mile of main track.

The following table gives the average cost, classified as above, and also the average capital investment (amount of outstanding capital stock, premiums and funded debt), per mile of main track, as returned by all of the companies at the end of each of the last nine years and of the nine months ending June 30, 1910: —

*Cost and Capital Investment per Mile of Main Track, 1907-1916.*

YEARS.	Construc- tion.	Equip- ment.	Other Permanent Property. <sup>1</sup>	Total Cost per Mile.	Capital Invest- ment per Mile.
1907, . . . . .	\$30,064	\$10,801	\$14,563	\$55,428	\$49,843
1908, . . . . .	31,005	11,103	15,569	57,677	52,745
1909, . . . . .	31,747	11,076	15,757	58,580	55,409
1910, <sup>2</sup> . . . . .	32,484	11,654	17,594	61,732	56,279
1911, . . . . .	36,216	11,760	16,250	64,226	58,126
1912, . . . . .	37,350	12,287	18,866	68,503	60,793
1913, . . . . .	37,294	12,270	19,317	68,881	63,872
1914, . . . . .	37,882	13,112	19,652	70,646	64,534
1915, . . . . .	39,895	13,370	17,639	70,904	66,980
1916, . . . . .	40,220	13,413	17,767	71,400	69,935

<sup>1</sup> Chiefly lands, parks, buildings and power plants.

<sup>2</sup> For nine months ending June 30, 1910.

### INCOME AND EXPENDITURES.

The total income of the companies from all sources for the year ending June 30, 1916, was \$44,266,918.53, and the total expenditures (including dividends declared) for the same period were \$44,096,232.94, — making a net surplus of \$170,685.59 to be added to the surplus of previous years.

The sources of total income, and the amount derived from each source as compared with 1915, are shown in the following table: —

*Total Income, 1915 and 1916.*

INCOME.	1915.	1916.	Increase.
Total operating revenues, . . . . .	\$39,537,442 61	\$41,479,275 43	\$1,941,832 82
Net revenue from auxiliary operations, . . . . .	122,446 42	143,064 39	20,617 97
Income from lease of road, . . . . .	2,425,898 67	2,483,246 47	57,347 80
Miscellaneous non-operating income, . . . . .	145,096 88	161,332 24	16,235 36
Gross income, . . . . .	\$42,230,884 58	\$44,266,918 53	\$2,036,033 95

The items of total expenditure, with the increase and decrease in each item over the previous year, are shown in the following table: —

*Total Expenditures, 1915 and 1916.*

EXPENDITURES.	1915.	1916.	Increase.
Total operating expenses, . . . . .	\$27,194,899 10	\$29,348,990 09	\$2,154,090 99
Taxes, . . . . .	2,467,773 45	2,388,118 34	79,655 11*
Rents of leased roads, . . . . .	2,781,592 89	2,860,024 36	78,431 47
Interest on debt of loans, . . . . .	4,516,045 23	4,610,596 87	94,551 64
Amortization of discount on funded debt, . . . . .	23,503 93	29,915 64	6,411 71
Maintenance of organization, . . . . .	10,287 03	9,460 35	826 68*
Miscellaneous debits, . . . . .	672,441 16	768,554 80	96,113 64
Dividends declared, . . . . .	4,612,019 74	4,080,572 49	531,447 25*
Total expenditures, . . . . .	\$42,278,562 53	\$44,096,232 94	\$1,817,670 41
Surplus for the year, . . . . .	\$47,677 95d	\$170,685 59	218,363 54

\* Decrease.

d Deficit.

## EARNINGS AND EXPENSES OF OPERATION.

The gross earnings and expenses of operation the last year are classified and compared with those of the previous year in the following table: —

*Operating Revenues and Expenses, 1915 and 1916.*

REVENUES AND EXPENSES.	1915.	1916.	Increase.
Passenger revenue, . . . . .	\$37,689,463 44	\$39,444,660 83	\$1,755,197 39
Parlor and special car revenue, . . . . .	117,791 23	113,464 69	4,326 54*
Mail, . . . . .	81,764 24	46,233 44	35,520 80*
Express, baggage and freight, . . . . .	752,623 77	921,900 87	169,277 10
Milk, . . . . .	19,652 87	22,301 80	2,648 93
Miscellaneous transportation revenue, . . . . .	21,130 79	20,127 12	1,003 67*
Total revenue from operations other than transportation, . . . . .	855,026 27	910,586 68	55,560 41
Total operating revenues, . . . . .	\$39,537,442 61	\$41,479,275 43	\$1,941,832 82
Operating expenses, . . . . .	27,194,899 10	29,348,990 09	2,154,090 99
Net operating revenue, . . . . .	\$12,342,543 51	\$12,130,285 34	\$212,258 17*

\* Decrease.

## VOLUME OF TRAFFIC.

The total number of passengers carried during the last year as reported by the thirty-eight operating railway companies making returns to this Commission was 795,626,457, — an increase of 35,162,085 passengers over the previous year.

The total number of miles run by street cars during the year was 134,889,060, — an increase of 2,701,464 miles over the previous year.

The following table gives the total volume of traffic, itemized as above, for each of the last nine years and for the nine months ending June 30, 1910: —

*Volume of Traffic, 1907-1916.*

YEARS.	Total Passengers Carried.	Average Number per Mile of Main Track Operated.	Total Car Miles Run.
1907, . . . . .	600,695,816	217,042	117,719,203
1908, . . . . .	602,400,874	219,774	116,982,089
1909, . . . . .	624,532,753	225,887	117,493,499
1910, <sup>1</sup> . . . . .	469,330,784	169,921	87,712,572
1911, . . . . .	683,362,717	246,021	123,659,082
1912, . . . . .	701,798,274	248,698	125,078,724
1913, . . . . .	738,522,280	253,044	130,588,351
1914, . . . . .	766,628,535	261,853	132,355,825
1915, . . . . .	760,464,372	257,558	132,187,596
1916, . . . . .	795,626,457	267,191	134,889,060

<sup>1</sup> For nine months ending June 30, 1910.

## EARNINGS AND EXPENSES OF OPERATION.

The following table gives the gross earnings from operation, the operating expenses, the ratio of operating expenses to gross earnings, and the net earnings for each of the last nine years and for the nine months ending June 30, 1910: —

*Ratio of Operating Expenses to Gross Earnings, 1907-1916.*

YEARS.	Gross Earnings from Operation.	Operating Expenses.	Ratio of Operating Expenses to Operating Revenues.	Net Earnings.
1907, . . . . .	\$30,557,862	\$20,689,668	<b>67.71</b>	\$9,868,194
1908, . . . . .	30,780,962	20,541,577	<b>66.73</b>	10,239,385
1909, . . . . .	31,956,007	20,915,728	<b>65.45</b>	11,040,279
1910, <sup>1</sup> . . . . .	24,032,236	16,191,893	<b>67.38</b>	7,840,343
1911, . . . . .	35,036,997	22,895,804	<b>65.34</b>	12,141,193
1912, . . . . .	36,080,237	24,363,903	<b>67.53</b>	11,716,334
1913, . . . . .	33,125,693	25,729,054	<b>67.48</b>	12,396,639
1914, . . . . .	39,703,706	26,665,220	<b>67.16</b>	13,038,486
1915, . . . . .	39,537,443	27,194,899	<b>68.78</b>	12,342,544
1916, . . . . .	41,479,275	29,348,990	<b>70.75</b>	12,130,285

<sup>1</sup> For nine months ending June 30, 1910.

The following table gives the ratio of operating expenses (divided into the general operating accounts) to the operating revenues for the year ending June 30, 1916: —

RAILWAY COMPANIES.	Way and Structures (Per Cent).	Equipment (Per Cent).	Power (Per Cent).	Transportation (Per Cent).	Traffic (Per Cent).	General and Miscellaneous (Per Cent).	Total (Per Cent).
Bay State, . . . . .	14.94	9.37	10.06	31.50	.60	12.15	78.62
Berkshire, . . . . .	13.89	9.71	18.85	26.46	.11	7.46	76.48
Blue Hill, . . . . .	10.21	6.93	17.68	24.43	.04	14.56	73.85
Boston Elevated, . . . . .	9.28	7.09	6.60	31.72	.10	9.85	64.64
Boston & Worcester, . . . . .	8.05	8.52	12.26	23.24	.90	9.58	62.55
Bristol & Norfolk, . . . . .	8.01	14.69	29.25	37.15	7.13	16.34	112.57
Brockton & Plymouth, . . . . .	7.75	10.37	18.68	26.35	2.67	14.79	80.61
Concord, Maynard & Hudson, . . . . .	7.36	8.91	19.57	20.28	.37	10.40	66.89
Connecticut Valley, . . . . .	6.71	8.35	27.09	21.30	.36	9.81	73.62
Conway Electric, . . . . .	27.22	15.93	15.74	37.04	—	7.80	103.73
East Taunton, . . . . .	8.07	15.56	21.25	17.96	—	9.95	72.79
Fitchburg & Leominster, . . . . .	9.59	8.51	14.15	25.16	.63	10.03	68.07
Holyoke, . . . . .	9.81	7.77	11.60	27.37	.21	11.78	68.54



RAILWAY COMPANIES.	Way and Structures (Per Cent).	Equipment (Per Cent).	Power (Per Cent).	Transportation (Per Cent).	Traffic (Per Cent).	General and Miscellaneous (Per Cent).	Total (Per Cent).
Interstate Consolidated, . . .	6.73	-	23.44	33.50	.15	22.40	86.22
Linwood, . . . . .	3.82	12.10	15.27	35.36	.21	17.46	84.17
Lowell & Fitchburg, . . .	7.58	6.49	20.55	13.73	.19	8.30	61.84
Massachusetts Northeastern, . .	13.82	8.23	23.88	25.09	1.16	10.36	82.54
Middlesex & Boston, . . .	8.09	9.61	18.27	29.59	.13	9.59	75.28
Milford, Attleborough & Woonsocket.	10.31	9.78	18.39	29.74	.21	12.16	80.59
Milford & Uxbridge, . . .	9.23	5.31	22.79	26.99	1.16	8.11	73.59
Nahant & Lynn, . . . . .	7.09	8.83	11.25	23.05	1.20	25.83	77.25
New Bedford & Onset, . . .	20.97	9.21	29.06	21.81	.32	6.68	88.05
Norfolk & Bristol, . . . .	7.52	9.62	15.36	25.39	-	21.75	79.64
Northampton, . . . . .	12.87	7.46	12.07	22.88	.03	12.35	67.66
Northern Massachusetts, . .	16.35	10.50	22.97	24.81	.65	12.73	88.01
Norton & Taunton (receiver), .	15.88	5.76	20.69	27.35	.01	17.69	87.38
Norwood, Canton & Sharon, .	30.98	14.23	33.50	42.24	1.02	13.52	135.49
Oak Bluffs, . . . . .	15.54	12.68	21.57	31.10	2.45	43.58	126.92
Plymouth & Sandwich, . . .	13.22	12.39	21.30	25.19	.63	34.68	107.41
Point Shirley, . . . . .	13.84	17.74	47.36	53.08	-	3.99	136.01
Providence & Fall River, . .	9.75	15.58	22.01	21.77	-	10.46	79.57
Shelburne Falls & Colrain, . .	14.47	4.39	9.90	20.86	-	13.45	63.07
Springfield, . . . . .	7.24	11.19	12.40	32.77	.29	12.62	76.51
Taunton & Pawtucket, . . .	10.84	16.60	28.91	20.09	-	18.87	95.31
Bristol County property (receiver),	7.70	17.12	36.42	20.69	6.10	12.29	100.32
Union, . . . . .	12.07	6.04	12.28	28.73	.93	9.31	69.36
Ware & Brookfield, . . . .	21.61	23.05	41.75	40.27	-	14.48	141.16
Worcester Consolidated, . . .	10.53	9.26	11.79	26.29	.40	10.54	68.81
Worcester & Warren, . . . .	10.09	12.19	24.59	26.91	5.52	9.42	88.72
Average, . . . . .	10.90	8.25	10.19	30.34	.35	10.72	70.75

The following table gives for each of the last nine years and for the nine months ending June 30, 1910, the average gross earnings, operating expenses, and net earnings from operation per total mile of main track owned:—

*Gross and Net Earnings from Operation per Mile of Main Track Owned,  
1907-1916.*

YEARS.	AVERAGE PER MILE OF TRACK OWNED.		
	Gross Earnings.	Expenses of Operation.	Net Earnings.
1907, . . . . .	\$11,485	\$7,776	\$3,709
1908, . . . . .	11,507	7,679	3,828
1909, . . . . .	11,899	7,788	4,111
1910, <sup>1</sup> . . . . .	8,892	5,991	2,901
1911, . . . . .	12,877	8,415	4,462
1912, . . . . .	13,148	8,878	4,270
1913, . . . . .	13,461	9,084	4,377
1914, . . . . .	14,017	9,414	4,603
1915, . . . . .	13,839	9,519	4,320
1916, . . . . .	14,433	10,212	4,221

<sup>1</sup> For nine months ending June 30, 1910.

The following table gives the cost of operating expenses (divided into the general operating accounts) per car mile. The cost of power per car mile is based on the actual cost of power less power sold.

RAILWAY COMPANIES.	Way and Structures (Cents).	Equipment (Cents).	Power (Cents).	Transportation (Cents).	Traffic (Cents).	General and Miscellaneous (Cents).
Bay State, . . . . .	4.58	2.87	3.00	9.66	.18	3.73
Berkshire, . . . . .	3.71	2.59	4.04	7.07	.03	1.99
Blue Hill, . . . . .	2.61	1.77	3.63	6.26	.01	3.73
Boston Elevated, . . . . .	2.96	2.26	2.02	10.12	.03	3.14
Boston & Worcester, . . . . .	2.86	3.02	4.36	8.26	.32	3.40
Bristol & Norfolk, . . . . .	1.42	2.58	5.17	6.56	1.26	2.89
Brockton & Plymouth, . . . . .	1.96	2.61	4.28	6.65	.67	3.73
Concord, Maynard & Hudson, . . . . .	2.09	2.53	5.57	5.77	.11	2.96
Connecticut Valley, . . . . .	1.85	2.30	7.45	5.86	.10	2.68
Conway Electric, . . . . .	7.08	4.15	0.72	9.65	-	2.03
East Taunton, . . . . .	2.38	4.58	6.28	5.31	-	2.94
Fitchburg & Leominster, . . . . .	2.82	2.50	4.10	7.39	.19	2.94
Holyoke, . . . . .	2.88	2.28	3.40	8.03	.06	3.45

RAILWAY COMPANIES.	Way and Structures (Cents).	Equipment (Cents).	Power (Cents).	Transportation (Cents).	Traffic (Cents).	General and Miscellaneous (Cents).
Interstate Consolidated, . . .	1.70	—	5.93	8.47	.03	5.66
Linwood, . . . . .	1.23	3.89	4.90	11.33	.06	5.62
Lowell & Fitchburg, . . .	1.94	1.66	5.27	4.80	.05	2.13
Massachusetts Northeastern, .	3.74	2.23	6.36	6.79	.31	2.80
Middlesex & Boston, . . .	2.19	2.60	4.83	8.01	.04	2.60
Milford, Attleborough & Woonsocket.	2.57	2.43	4.58	7.42	.05	3.03
Milford & Uxbridge, . . .	2.47	1.42	3.75	7.22	.31	2.17
Nahant & Lynn, . . . . .	2.73	3.40	4.33	8.87	.46	9.94
New Bedford & Onset, . . .	6.73	2.95	4.84	6.99	.11	2.14
Norfolk & Bristol, . . . .	1.57	2.00	3.19	5.29	—	4.53
Northampton, . . . . .	3.72	2.15	3.49	6.61	—	3.57
Northern Massachusetts, . . .	4.30	2.76	6.04	6.52	.17	3.35
Norton & Taunton (receiver), .	2.99	1.09	3.68	5.18	—	3.37
Norwood, Canton & Sharon, .	4.95	2.27	5.35	6.75	.16	2.16
Oak Bluffs, . . . . .	9.04	7.33	12.53	18.11	1.42	25.36
Plymouth & Sandwich, . . .	3.05	2.86	4.91	5.81	.15	7.99
Point Shirley, . . . . .	3.97	5.08	13.57	15.21	—	1.14
Providence & Fall River, . .	2.86	4.57	6.45	6.33	—	3.07
Shelburne Falls & Colrain, . .	6.46	1.96	3.86	9.32	—	6.01
Springfield, . . . . .	1.99	3.08	3.33	9.03	.08	3.48
Taunton & Pawtucket, . . .	2.24	3.42	5.96	4.14	—	3.89
Bristol County property (receiver).	1.53	3.40	7.23	4.11	1.21	2.44
Union, . . . . .	4.34	2.17	4.29	10.33	.34	3.35
Ware & Brookfield, . . . .	4.22	4.50	8.16	7.87	—	2.83
Worcester Consolidated, . . .	3.46	3.04	3.80	8.64	.13	3.46
Worcester & Warren, . . . .	1.77	2.14	4.33	4.73	.97	1.66
Average, . . . . .	3.35	2.54	2.99	9.33	.11	3.30

The following table gives the average fare per revenue passenger, the operating revenue and operating expenses per car mile and per car hour, and the net operating revenue per car mile and per car hour:—

RAILWAY COMPANIES.	Average Fare per Revenue Passenger (Cents).	Operating Revenue per Car Mile (Cents).	Operating Expenses per Car Mile (Cents).	Net Operating Revenue per Car Mile (Cents).	Operating Revenue per Car Hour (Dollars).	Operating Expenses per Car Hour (Dollars).	Net Operating Revenue per Car Hour (Dollars).
Bay State, . . . . .	4.84	30.67	24.12	6.55	2.54	2.00	.54
Berkshire, . . . . .	4.90	26.72	20.44	6.28	3.07	2.35	.72
Blue Hill, . . . . .	5.15	25.62	18.92	6.70	2.71	2.00	.71
Boston Elevated, . . . . .	5.00	31.90	20.62	11.28	3.39	2.19	1.20
Boston & Worcester, . . . . .	5.30	35.54	22.23	13.31	5.18	3.24	1.94
Bristol & Norfolk, . . . . .	5.12	17.67	19.89	2.22*	2.15	2.42	.27*
Brookton & Plymouth, . . . . .	5.83	25.23	20.34	4.89	2.50	2.01	.49
Concord, Maynard & Hudson, . . . . .	5.55	28.46	19.04	9.42	3.32	2.22	1.10
Connecticut Valley, . . . . .	5.40	27.49	20.24	7.25	3.71	2.73	.98
Conway Electric, . . . . .	5.00	26.06	27.03	.97*	2.35	2.43	.08*
East Taunton, . . . . .	4.67	29.54	21.50	8.04	3.00	2.19	.81
Fitchburg & Leominster, . . . . .	4.89	29.35	19.98	9.37	2.68	1.83	.85
Holyoke, . . . . .	4.99	29.34	20.11	9.23	2.86	1.96	.90
Interstate Consolidated, . . . . .	4.30	25.29	21.80	3.49	2.69	2.32	.37
Linwood, . . . . .	3.40	32.17	27.08	5.09	1.97	1.66	.31
Lowell & Fitchburg, . . . . .	5.04	25.62	15.85	9.77	3.54	2.19	1.35
Massachusetts Northeastern, . . . . .	4.83	27.05	22.33	4.72	3.14	2.59	.55
Milford, Attleborough & Woonsocket, . . . . .	4.91	24.03	20.09	4.84	2.93	2.36	.57
Middlesex & Boston, . . . . .	5.79	27.08	20.38	6.70	2.67	2.01	.66
Milford & Uxbridge, . . . . .	4.77	26.73	19.68	7.05	2.84	2.09	.75
Nahant & Lynn, . . . . .	6.70	38.47	29.72	8.75	3.18	2.46	.68
New Bedford & Onset, . . . . .	5.08	32.05	28.23	3.82	3.80	3.35	.45
Norfolk & Bristol, . . . . .	5.38	20.82	16.58	4.24	2.13	1.70	.43
Northampton, . . . . .	4.55	28.88	19.54	9.34	3.18	2.15	1.03
Northern Massachusetts, . . . . .	4.76	26.30	23.14	3.16	2.56	2.25	.31
Norton & Taunton (receiver), . . . . .	4.85	18.96	16.57	2.39	2.10	1.83	.27
Norwood, Canton & Sharon, . . . . .	4.86	15.97	21.64	5.67*	1.19	1.61	.42*
Oak Bluffs, . . . . .	5.00	58.22	73.89	15.81*	2.11	2.68	.57*
Plymouth & Sandwich, . . . . .	8.65	23.06	24.77	1.71*	2.77	2.97	.20*
Point Shirley, . . . . .	4.68	28.65	38.97	10.32*	1.33	1.81	.48*
Providence & Fall River, . . . . .	4.69	29.32	23.33	5.99	3.79	3.02	.77
Shelburne Falls & Colrain, . . . . .	5.00	44.68	28.18	16.50	4.07	2.56	1.51
Springfield, . . . . .	4.95	27.55	21.08	6.47	2.61	2.00	.61
Taunton & Pawtucket, . . . . .	4.91	20.62	19.66	.96	2.66	2.54	.12

\* Loss.

RAILWAY COMPANIES.	Average Fare per Revenue Passenger (Cents).	Operating Revenue per Car Mile (Cents).	Operating Expenses per Car Mile (Cents).	Net Operating Revenue per Car Mile (Cents).	Operating Revenue per Car Hour (Dollars).	Operating Expenses per Car Hour (Dollars).	Net Operating Revenue per Car Hour (Dollars).
Bristol County property (receiver),	4.48	19.85	19.91	.09*	2.42	2.43	.01*
Union, . . . . .	4.80	35.95	24.94	11.01	2.99	2.07	.92
Ware & Brookfield, . . . . .	5.48	19.55	27.59	8.04*	2.14	3.02	.88*
Worcester Consolidated, . . . . .	4.93	32.87	22.62	10.25	3.05	2.10	.95
Worcester & Warren, . . . . .	5.80	17.59	15.61	1.98	1.69	1.50	.19
Average, . . . . .	4.96	30.75	21.76	8.99	3.08	2.18	.90

\* Loss.

*Gross and Net Earnings from Operation per Car Mile Run and per Passenger Carried, 1907-1916.*

YEARS.	AVERAGE PER CAR MILE.			AVERAGE PER PASSENGER.		
	Gross Earnings (Cents).	Expenses of Operation (Cents).	Net Earnings (Cents).	Gross Earnings (Cents).	Expenses of Operation (Cents.)	Net Earnings (Cents).
1907, . . . . .	25.96	17.58	8.38	5.08	3.44	1.64
1908, . . . . .	26.31	17.56	8.75	5.11	3.41	1.70
1909, . . . . .	27.19	17.80	9.39	5.12	3.35	1.77
1910, <sup>1</sup> . . . . .	27.39	18.45	8.94	5.12	3.45	1.67
1911, . . . . .	28.33	18.51	9.82	5.13	3.35	1.78
1912, . . . . .	28.85	19.48	9.37	5.14	3.47	1.67
1913, . . . . .	29.19	19.70	9.49	5.16	3.48	1.68
1914, . . . . .	29.99	20.14	9.85	5.18	3.48	1.70
1915, . . . . .	29.91	20.57	9.34	5.20	3.53	1.62
1916, . . . . .	30.75	21.76	8.99	5.21	3.69	1.52

<sup>1</sup> For nine months ending June 30, 1910.

The following table gives the number of passengers carried per passenger car mile and per passenger car hour, and the car miles operated per car hour: —



RAILWAY COMPANIES.	Number of Passengers per Passenger Car Mile.	Number of Passengers per Passenger Car Hour.	Number of Car Miles per Car Hour.
Bay State, . . . . .	6.1	50.9	8.3
Berkshire, . . . . .	5.2	59.6	11.5
Blue Hill, . . . . .	4.7	50.0	10.6
Boston Elevated, . . . . .	6.2	66.1	10.6
Boston & Worcester, . . . . .	6.4	107.4	16.8
Bristol & Norfolk, . . . . .	3.4	41.1	12.1
Brockton & Plymouth, . . . . .	4.2	43.4	10.3
Concord, Maynard & Hudson, . . . . .	5.0	58.9	11.7
Connecticut Valley, . . . . .	5.0	64.2	12.8
Conway Electric, . . . . .	2.5	23.0	9.0
East Taunton, . . . . .	6.3	64.1	10.1
Fitchburg & Leominster, . . . . .	5.8	54.4	9.3
Holyoke, . . . . .	5.8	56.6	9.6
Interstate Consolidated, . . . . .	5.4	60.2	11.0
Linwood, . . . . .	9.1	55.8	6.1
Lowell & Fitchburg, . . . . .	5.0	69.7	13.9
Massachusetts Northeastern, . . . . .	5.5	63.5	11.6
Middlesex & Boston, . . . . .	4.5	44.6	9.9
Milford, Attleborough & Woonsocket, . . . . .	4.8	58.7	12.2
Milford & Uxbridge, . . . . .	5.0	53.1	10.6
Nahant & Lynn, . . . . .	5.7	47.3	8.3
New Bedford & Onset, . . . . .	4.8	60.2	13.1
Norfolk & Bristol, . . . . .	3.8	38.8	10.2
Northampton, . . . . .	6.4	71.2	11.0
Northern Massachusetts, . . . . .	5.2	51.7	9.8
Norton & Taunton (receiver), . . . . .	3.8	41.5	11.1
Norwood, Canton & Sharon, . . . . .	3.2	23.7	7.4
Oak Bluffs, . . . . .	11.2	40.8	3.6
Plymouth & Sandwich, . . . . .	2.5	30.0	12.0
Point Shirley, . . . . .	6.1	28.3	4.6
Providence & Fall River, . . . . .	4.2	72.0	17.0
Shelburne Falls & Colrain, . . . . .	3.4	30.7	9.1
Springfield, . . . . .	5.4	51.7	9.5
Taunton & Pawtucket, . . . . .	4.1	53.8	12.9
Bristol County property (receiver), . . . . .	4.4	53.6	12.2
Union, . . . . .	7.0	59.1	8.4
Ware & Brookfield, . . . . .	3.4	37.6	10.9
Worcester Consolidated, . . . . .	6.4	60.8	9.4
Worcester & Warren, . . . . .	3.0	28.8	9.6
Average, . . . . .	5.9	59.1	9.9

## EMPLOYEES AND EQUIPMENT.

The number of persons employed by the street railway companies, and also the number of passenger cars, other cars and plows and electric motors owned, are given in the following table for each of the last nine years and for the nine months ending June 30, 1910:—

*Employees and Equipment, 1907-1916.*

YEARS.	Employees.	Passenger Cars.	Other Cars and Plows.	Electric Motors.
1907, . . . . .	18,181	7,539	2,900	15,626
1908, . . . . .	17,267	7,618	2,890	16,649
1909, . . . . .	17,575	7,546	2,834	16,526
1910, <sup>1</sup> . . . . .	18,839	7,669	2,869	17,586
1911, . . . . .	21,972	7,821	2,907	17,921
1912, . . . . .	23,290	8,004	2,929	18,267
1913, . . . . .	24,136	8,154	2,897	19,623
1914, . . . . .	23,412	8,364	2,927	20,636
1915, . . . . .	23,842	8,296	1,399	20,688
1916, . . . . .	24,203	8,160	1,374	20,293

<sup>1</sup> For nine months ending June 30, 1910.

## STREET RAILWAY ACCIDENTS.

The total number of persons injured, in connection with street railway operation, as returned by the companies for the year ending June 30, 1916, was 11,120, of whom 95 received fatal injuries and 11,025 injuries not fatal.

The number of passengers injured was 7,681, of whom 18 were injured fatally.

The injuries to employees were 1,896 in all, 16 of which were fatal.

The number of injuries to travellers and others on the street was 1,543, of which 61 were fatal.

These figures include a very large number of injuries of a trivial character that have been returned by the companies.

In the following table the accidents of the last year as returned are classified as above, and are compared with those of the previous year: —

*Summary of Accidents Reported June 30, 1915 and 1916.*

KILLED AND INJURED.	KILLED.		INJURED.		TOTALS.	
	1915.	1916.	1915.	1916.	1915.	1916.
Passengers, . . . .	22	18	6,207	7,663	6,229	7,681
Employees, . . . .	10	16	751	1,880	761	1,896
Other persons, . . . .	53	61	1,445	1,482	1,498	1,543
Totals, . . . .	85	95	8,403	11,025	8,488	11,120

The following is a summary of all accidents reported by the street railway companies for the year ending June 30, 1916, whether personal injury or property damage resulted or not, showing the manner in which said accidents occurred: —

*Classification of Accidents.*

1. Collision with vehicles, . . . . .	8,234
2. Collision with persons, . . . . .	1,086
3. Collision with cars, . . . . .	834
4. Derailment of cars, . . . . .	2,756
5. Split switch, no derailment, . . . . .	643
6. Boarding cars:	
(a) Open cars, . . . . .	1,217
(b) Box cars, . . . . .	2,199
(c) Semi cars, . . . . .	183

7. Alighting from cars:	
(a) Open cars, . . . . .	2,358
(b) Box cars, . . . . .	3,178
(c) Semi cars, . . . . .	427
8. Fell in or on car, . . . . .	1,849
9. Injured on running board of open car, . . . . .	153
10. Electrical troubles (controller or fuse blowout, etc.), . . . . .	2,007
11. Injured on account of condition of highway (track construction or repairs), . . . . .	180
12. Injured by falling trolley or span wire, . . . . .	135
13. Injured by falling side bar, . . . . .	100
14. Injured by falling window, register light bulbs, etc., . . . . .	109
15. Caught in closing doors, . . . . .	1,360
16. Stealing ride, . . . . .	113
17. Broken glass, . . . . .	2,306
18. Equipment, . . . . .	1,524
19. Miscellaneous, . . . . .	5,147
20. Injuries to employees, . . . . .	3,641
Grand total, . . . . .	42,739

## ISSUES OF STOCK AND BONDS.

*Issues of Capital Stock.*

RAILWAY COMPANIES.	Date when Authorized.	Amount Authorized.
Bay State, . . . . .	April 15	\$735,700
Bay State, . . . . .	December 2	2,500,000
Boston & Worcester, . . . . .	September 27	60,000
Massachusetts Northeastern, . . . . .	December 12	100,000
Worcester & Warren, . . . . .	April 26	10,600

*Issues of Bonds.*

RAILWAY COMPANIES.	Date when Authorized.	Amount Authorized.
Boston & Worcester, . . . . .	September 27	\$60,000
West End, . . . . .	April 6	2,396,000
Worcester & Warren, . . . . .	April 26	72,000

TABULATED STATEMENT OF INCOME ACCOUNTS FROM THE REPORTS OF STREET RAILWAY COMPANIES,  
YEAR ENDING JUNE 30, 1916.

	RAILWAY COMPANIES.		Railway Operating Revenues.	Railway Operating Expenses.	Net Revenue Railway Operations.	Net Revenue Auxiliary Operations.	Net Operating Revenues.	Taxes assignable to Railway Operations.	Operating Income.
1	Bay State, . . . . .	.	\$9,770,609 33	\$7,682,070 45	\$2,088,538 88	\$143,064 39	\$2,231,603 27	\$609,061 48	\$1,622,541 79
2	Berkshire, . . . . .	.	956,968 14	731,879 02	225,089 12	-	225,089 12	56,821 79	168,267 33
3	Blue Hill, . . . . .	.	93,100 31	68,752 25	24,348 06	-	24,348 06	2,984 96	21,363 10
4	Boston & Chelsea, . . . . .	.	-	-	-	-	-	-	-
5	Boston Elevated, . . . . .	.	18,686 971 58	12,079,995 96	6,606,975 62	-	6,606,975 62	1,043,041 89	5,563,933 73
6	Boston & Revere Electric, . . . . .	.	-	-	-	-	-	-	-
7	Boston & Worcester, . . . . .	.	799,855 53	500,333 03	299,522 50	-	299,522 50	50,652 02	248,870 48
8	Bristol & Norfolk, . . . . .	.	14,323 42	16,124 19	1,800 77 <i>d</i>	-	1,800 77 <i>d</i>	255 82	2,056 59 <i>d</i>
9	Brockton & Plymouth, . . . . .	.	118,704 01	95,683 16	23,020 85	-	23,020 85	5,183 18	17,837 67
10	Concord, Maynard & Hudson, . . . . .	.	77,015 38	51,514 07	25,501 31	-	25,501 31	3,430 91	22,070 40
11	Connecticut Valley, . . . . .	.	235,619 20	173,474 70	62,144 50	-	62,144 50	10,897 07	51,247 43
12	Conway Electric, . . . . .	.	10,774 81	11,176 81	402 00 <i>d</i>	-	402 00 <i>d</i>	395 63	797 63 <i>d</i>
13	East Middlesex, . . . . .	.	-	-	-	-	-	-	-
14	East Taunton, . . . . .	.	48,728 68	35,473 01	13,255 67	-	13,255 67	3,104 02	10,151 65
15	Fitchburg & Leominster, . . . . .	.	328,304 36	223,493 66	104,810 70	-	104,810 70	18,043 89	86,766 81
16	Holyoke, . . . . .	.	617,327 87	423,128 98	194,198 89	-	194,198 89	46,010 68	148,188 21
17	Interstate Consolidated, . . . . .	.	171,504 98	147,868 29	23,636 69	-	23,636 69	6,042 29	17,594 40
18	Linwood, . . . . .	.	19,720 93	16,598 41	3,122 52	-	3,122 52	656 57	2,465 95
19	Lowell & Fitchburg, . . . . .	.	56,083 63	34,683 15	21,400 48	-	21,400 48	1,321 02	20,079 46
20	Martha's Vineyard, . . . . .	.	-	-	-	-	-	-	-
21	Massachusetts Northeastern, . . . . .	.	705,770 79	582,540 53	123,230 26	-	123,230 26	25,576 86	97,653 60
22	Medway & Dedham, . . . . .	.	-	-	-	-	-	-	-
23	Middlesex & Boston, . . . . .	.	1,038,435 32	781,730 82	256,704 50	-	256,704 50	35,964 05	220,740 45
24	Milford, Attleborough & Woonsocket, . . . . .	.	106,479 24	85,814 97	20,664 27	-	20,664 27	5,082 26	15,582 01
25	Milford & Uxbridge, . . . . .	.	272,317 52	200,418 74	71,898 78	-	71,898 78	13,872 47	58,026 31





## Income Statement for the Year ending June 30, 1916 — Continued.

	RAILWAY COMPANIES.	Income from Lease of Road.	Miscellaneous Non-operating Income.	Gross Income.	Rent for Leased Roads.	Interest on Funded Debt.	Interest on Unfunded Debt.	Amortiza- tion of Discount on Funded Debt.
1	Bay State, . . . . .	\$52,023 15	\$10,788 66	\$1,635,353 60	\$189,253 37	\$1,037,108 62	\$86,768 60	\$23,628 91
2	Berkshire, . . . . .	—	2,222 69	170,490 02	42,300 00	79,000 00	123,893 60	—
3	Blue Hill, . . . . .	—	7 42	21,370 52	—	12,500 00	7,080 00	—
4	Boston & Chelsea, . . . . .	7,560 00	95	7,560 95	—	—	—	—
5	Boston Elevated, . . . . .	1,029 28	93,326 88	5,658,289 89	2,580,490 99	1,064,624 97	65,052 73	3,755 20
6	Boston & Revere Electric, . . . . .	5,000 00	53 84	5,053 84	—	2,500 00	—	—
7	Boston & Worcester, . . . . .	—	1,398 05	250,268 53	—	111,000 00	9,293 74	—
8	Bristol & Norfolk, . . . . .	—	—	2,056 50 <i>d</i>	—	3,500 00	97 06	—
9	Brockton & Plymouth, . . . . .	—	168 18	18,005 85	—	11,700 00	1,619 98	—
10	Concord, Maynard & Hudson, . . . . .	339 12	1,244 36	23,653 88	750 00	11,500 00	2,712 26	—
11	Connecticut Valley, . . . . .	—	6,625 97	57,873 40	—	29,000 00	14,700 91	—
12	Conway Electric, . . . . .	—	—	797 63 <i>d</i>	—	4,650 00	2,019 19	—
13	East Middlesex, . . . . .	40,671 80	144 75	40,816 55	—	10,000 00	—	—
14	East Taunton, . . . . .	—	556 25	10,707 90	—	2,250 00	—	—
15	Fitchburg & Leominster, . . . . .	—	1,819 28	88,586 09	—	19,250 00	40,355 03	—
16	Holyoke, . . . . .	—	6,427 65	154,615 86	6,000 00	60,000 00	1,509 33	—
17	Interstate Consolidated, . . . . .	—	608 87	18,203 27	—	—	14,300 00	—
18	Linwood, . . . . .	—	—	2,465 95	—	—	30 00	—
19	Lowell & Fitchburg, . . . . .	—	1,677 90	21,757 36	—	13,750 00	—	—
20	Martha's Vineyard, . . . . .	2,048 09	—	2,048 09	—	—	—	—
21	Massachusetts Northeastern, . . . . .	—	15,115 23	112,768 83	—	50,000 00	23,554 95	—
22	Medway & Dedham, . . . . .	3,000 00	8 55	3,008 55	—	—	—	—
23	Middlesex & Boston, . . . . .	—	874 64	221,615 09	—	89,453 75	63,788 51	2,531 53
24	Milford, Attleborough & Woonsocket, . . . . .	—	1,002 75	16,584 76	—	15,000 00	275 00	—
25	Milford & Uxbridge, . . . . .	—	—	58,026 31	3,000 00	25,000 00	1,924 48	—
26	Mount Tom, . . . . .	6,000 00	136 06	6,136 06	—	—	—	—

27	Nahant & Lynn,	.	.	.	.	8,107 97	-	-	5,000 00	1,111 44	-
28	New Bedford & Onset,	.	.	.	.	11,697 66	-	-	14,000 00	983 94	-
29	Newtonville & Watertown,	.	.	.	.	8,510 57	-	-	-	2,684 25	-
30	Norfolk & Bristol,	.	.	.	67 29	17,274 69	-	-	10,000 00	-	-
31	Northampton,	.	.	.	926 80	49,639 63	-	-	-	2,631 22	-
32	North End,	.	.	.	228 52	8,023 91	-	-	3,750 00	-	-
33	Northern Massachusetts,	.	.	.	23 91	15,464 54	-	-	25,000 00	16,644 18	-
34	{ Norton & Taunton,	.	.	.	248 00	265 56	-	-	202 15	-	-
	{ Norton & Taunton (receiver),	.	.	.	510 73	5,432 68	-	-	-	-	-
35	Norwood, Canton & Sharon,	.	.	.	121 50	3,985 44d	-	-	1,500 00	-	-
36	Oak Bluffs,	.	.	.	273 25	1,127 60d	480 00	-	-	445 62	-
37	Plymouth & Sandwich,	.	.	.	-	1,351 43d	-	-	-	934 80	-
38	Point Shirley,	.	.	.	-	3,356 18d	-	-	-	115 87	-
39	Providence & Fall River,	.	.	.	-	8,634 37	-	-	8,250 00	5,766 60	-
40	Shelburne Falls & Colrain,	.	.	.	-	9,214 17	-	-	4,785 00	-	-
41	Somerville,	.	.	.	-	9,180 00	-	-	-	-	-
42	Springfield,	.	.	.	2,569 11	415,844 53	-	-	98,250 00	71,169 20	-
43	{ Taunton & Pawtucket,	.	.	.	13 77	335 63	-	-	4,548 40	-	-
	{ Bristol County property (receiver),	.	.	.	-	1,027 69d	-	-	-	-	-
44	Union,	.	.	.	-	233,692 11	-	-	11,250 00	7,977 63	-
45	Ware & Brookfield,	.	.	.	-	13,560 57d	-	-	6,750 00	-	-
46	Webster & Dudley,	.	.	.	-	14,500 00	-	-	1,500 00	-	-
47	West End,	.	.	.	164 08	2,307,365 83	10,500 00	-	845,541 25	-	-
48	Winnisimmet,	.	.	.	-	3,000 00	-	-	-	-	-
49	Worcester Consolidated,	.	.	.	10,604 79	755,102 30	27,250 00	-	233,140 00	104,481 32	-
50	Worcester & Shrewsbury Railroad,	.	.	.	-	3,750 00	-	-	1,100 00	-	-
51	Worcester & Shrewsbury Street Railway,	.	.	.	-	1,000 00	-	-	-	-	-
52	Worcester & Warren,	.	.	.	-	3,904 37	-	-	-	2,821 29	-
53	Worcester & Webster,	.	.	.	1,371 56	11,871 56	-	-	7,500 00	-	-
Totals,							\$161,332 24	\$12,529,810 10	\$2,860,024 36	\$676,742 73	\$29,915 64
							\$2,483,246 47				

d Deficit.

## Income Statement for the Year ending June 30, 1916 — Concluded.

	RAILWAY COMPANIES.	Maintenance of Organization.	Miscellaneous Debits.	Total Deductions.	Net Income.	Dividends Declared.	Percentage of Dividends Declared.	Surplus for Year.
1	Bay State, . . . . .	—	\$3,020 65	\$1,340,380 15	\$344,973 45	\$267,502 00	$\frac{1}{2}$ and 6	\$77,471 45
2	Berkshire, . . . . .	—	12,352 20	257,545 80	87,055 78d	—	—	87,055 78d
3	Blue Hill, . . . . .	—	167 44	19,747 44	1,023 08	—	—	1,023 08
4	Boston & Chelsea, . . . . .	\$300 00	—	300 00	7,260 95	7,260 00	6	95
5	Boston Elevated, . . . . .	—	740,596 27	4,454,520 16	1,203,769 73	1,193,970 00	5	9,799 73
6	Boston & Revere Electric, . . . . .	—	—	2,500 00	2,553 84	2,500 00	5	53 84
7	Boston & Worcester, . . . . .	—	—	120,293 74	129,974 79	99,769 50	$3\frac{1}{2}$ and 6	30,205 29
8	Bristol & Norfolk, . . . . .	—	—	3,597 06	5,653 65d	—	—	5,653 65d
9	Brockton & Plymouth, . . . . .	—	176 54	13,496 52	4,509 33	6,000 00	6	2,090 67d
10	Concord, Maynard & Hudson, . . . . .	—	—	14,962 26	8,691 62	—	—	8,691 62
11	Connecticut Valley, . . . . .	—	—	43,700 91	14,172 49	10,947 00	$\frac{1}{2}$ and 6	3,225 49
12	Conway Electric, . . . . .	—	—	6,669 19	7,466 82d	—	—	7,466 82d
13	East Middlesex, . . . . .	671 80	11 25	10,683 05	30,133 50	29,770 00	10	363 50
14	East Taunton, . . . . .	—	—	2,250 00	8,457 90	4,763 75	5	3,694 15
15	Fitchburg & Leominster, . . . . .	—	—	59,605 03	28,981 06	27,000 00	6	1,981 06
16	Holyoke, . . . . .	—	—	67,509 33	87,106 53	80,520 00	6	6,586 53
17	Interstate Consolidated, . . . . .	—	5 07	14,305 07	3,898 20	—	—	3,898 20
18	Linwood, . . . . .	—	—	30 00	2,435 95	720 00	6	1,715 95
19	Lowell & Fitchburg, . . . . .	—	—	13,750 00	8,007 36	2,750 00	1	5,257 36
20	Martha's Vineyard, . . . . .	—	—	—	2,048 09	—	—	2,048 09
21	Massachusetts Northeastern, . . . . .	—	—	73,554 95	39,213 88	—	—	39,213 88
22	Medway & Dedham, . . . . .	104 25	—	104 25	2,904 30	2,600 00	4	304 30
23	Middlesex & Boston, . . . . .	—	685 39	156,459 18	65,155 91	64,577 50	$3\frac{1}{2}$	578 41
24	Milford, Attleborough & Woonsocket, . . . . .	—	588 78	15,863 78	720 98	—	—	720 98
25	Milford & Uxbridge, . . . . .	—	—	29,924 48	28,101 83	28,000 00	5 and 6	101 83
26	Mount Tom, . . . . .	—	—	—	6,136 06	6,000 00	6	136 06

27	Nahant & Lynn,	.	.	.	.	6,111 44	1,996 53	7,000 00	7	5,003 47d
28	New Bedford & Onset,	.	.	.	.	20,983 94	9,286 28d	-	-	9 286 28d
29	Newtonville & Watertown,	.	.	.	.	4,562 12	3,948 45	3,600 00	7.2	348 45
30	Norfolk & Bristol,	.	.	.	.	10,000 00	7,274 69	-	-	7,274 69
31	Northampton,	.	.	.	.	2,631 22	47,008 41	42,500 00	5	4,508 41
32	North End,	.	.	.	.	3,812 75	4,211 16	4,125 00	3½	86 16
33	Northern Massachusetts,	.	.	.	.	41,644 18	26,179 64d	9,000 00	6	35,179 64d
34	{ Norton & Taunton,	.	.	.	.	202 15	63 41	-	-	63 41
35	{ Norton & Taunton (receiver),	.	.	.	.	-	5,432 68	-	-	5,432 68
36	Norwood, Canton & Sharon,	.	.	.	.	1,500 00	5,485 44d	-	-	5,485 44d
37	Oak Bluffs,	.	.	.	.	925 62	2,053 22d	-	-	2,053 22d
38	Plymouth & Sandwich,	.	.	.	.	934 80	2,286 23d	-	-	2,286 23d
39	Point Shirley,	.	.	.	.	115 87	3,472 05d	-	-	3,472 05d
40	Providence & Fall River,	.	.	.	.	14,016 60	5,382 23d	-	-	5,382 23d
41	Shelburne Falls & Colrain,	.	.	.	.	4,785 00	4,429 17	2,500 00	5	1,929 17
42	Somerville,	.	.	.	.	-	9,180 00	9,180 00	6	-
43	Springfield,	.	.	.	.	170,230 44	245,614 09	274,157 50	6½	28,543 41d
44	{ Taunton & Pawtucket,	.	.	.	.	4,548 40	4,212 77d	-	-	4,212 77d
45	{ Bristol County property (receiver),	.	.	.	.	-	1,027 69d	-	-	1,027 69d
46	Union,	.	.	.	.	19,227 63	214,464 48	130,000 00	8	84,464 48
47	Ware & Brookfield,	.	.	.	.	6,750 00	20,310 57d	-	-	20,310 57d
48	Webster & Dudley,	.	.	.	.	12,000 00	2,500 00	2,500 00	5	-
49	West End,	.	.	.	.	853,416 50	1,453,949 33	1,453,160 50	7 and 8	788 83
50	Winnisimmet,	.	.	.	.	-	3,000 00	3,000 00	6	-
51	Worcester Consolidated,	.	.	.	.	366,979 72	388,122 58	300,950 00	5	87,172 58
52	Worcester & Shrewsbury Railroad,	.	.	.	.	1,100 00	2,650 00	2,649 74	7.22	26
53	Worcester & Shrewsbury Street Railway,	.	.	.	.	-	1,000 00	1,000 00	5	-
	Worcester & Warren,	.	.	.	.	2,821 29	1,083 08	-	-	1,083 08
	Worcester & Webster,	.	.	.	.	7,500 00	4,371 56	-	-	4,371 56
	Totals,	.	.	.	.	\$8,278,552 02	\$4,251,258 08	\$4,080,572 49	3.98	\$170,085 59

d Deficit.

TABULATED STATEMENT OF INCOME ACCOUNTS FROM REPORTS OF TELEPHONE COMPANIES, YEAR  
ENDING JUNE 30, 1916.

TELEPHONE COMPANIES.		Operating Revenue.	Operating Expenses.	Net Operating Revenue.	Non- Operating Income.	Gross Income.	Deductions from Income.
American Telephone and Telegraph, Automatic, New Bedford,	.	\$25,745,878 05	\$11,403,431 83	\$14,337,446 22	\$31,333,136 77	\$45,670,552 99	\$3,853,886 26
Beechmont Independent,	.	59,442 92	27,053 20	32,384 72	-	32,384 72	11,929 94
Blanford & Chester,	.	78 00	52 00	26 00	-	26 00	-
Botton,	.	-	-	-	-	-	-
Columbia & Rensselaer,	.	5,347 87	2,553 23	2,784 59	-	2,784 59	-
Crescent,	.	18,749 81	13,105 02	5,644 79	-	5,644 79	100 65
Fall River Automatic,	.	1,350 00	625 00	725 00	-	725 00	-
Granby,	.	683 85	13,837 83	13,153 98 <sup>d</sup>	14 24	13,130 74 <sup>d</sup>	5,855 92
Heath,	.	2,503 76	2,161 15	342 61	-	342 61	-
Heath Local,	.	40,775 79	29,982 67	10,793 12	-	10,793 12	527 51
Highland,	.	712 92	631 93	80 99	-	80 99	-
Littleton,	.	3,144 02	2,855 88	288 14	-	288 14	89 24
Massachusetts,	.	347 11	93 06	254 05	-	254 05	-
Millers Falls,	.	300 00	7,638 73	7,338 73 <sup>d</sup>	-	7,338 73 <sup>d</sup>	210 33
Mixer Brothers,	.	1,934 34	1,864 24	70 10	-	70 10	-
New England Telephone and Telegraph, New England Telephone and Telegraph of Massachusetts,	.	4,219 64	4,972 38	147 26	-	147 26	82 50
Northfield Farms,	.	19,592,816 25	14,090,091 54	5,502,724 71	433,773 85	5,936,498 56	2,096,145 92
North Orange,	.	555 20	335 67	219 53	-	219 53	-
Oakham & Coldbrook Springs,	.	59 72	31 15	28 57	-	28 57	-
Providence,	.	1,838 29	1,475 27	363 02	-	363 02	-
Richmond,	.	85,596 81	67,144 64	18,452 17	144 58	18,596 75	7,068 13
Southern Massachusetts,	.	1,784 57	1,942 67	208 10 <sup>d</sup>	-	208 10 <sup>d</sup>	-
State Line,	.	-	-	-	-	-	-
Taheonic,	.	169 50	153 43	16 07	-	16 07	-
West Stockbridge Mutual,	.	249 75	281 64	31 89 <sup>d</sup>	-	31 89 <sup>d</sup>	-
	.	188 00	239 57	51 57 <sup>d</sup>	-	51 57 <sup>d</sup>	-
Totals,	.	\$45,568,676 17	\$25,676,668 78	\$19,892,007 39	\$31,767,069 44	\$51,659,076 83	\$10,975,896 40

<sup>d</sup> Deficit.



*Tabulated Statement of Income Accounts from Reports of Telephone Companies, Year Ending June 30, 1916 — Concluded.*

TELEPHONE COMPANIES.		Net Income.	Appropriations of Income.	Dividend Appropriations.	Total Appropriations of Income.	Surplus.
American Telephone and Telegraph, Automatic, New Bedford, . . . . .	.	\$36,816,696 73	\$2,500,000 00	\$30,275,237 27	\$32,775,237 27	\$4,041,459 46
Beechmont Independent, . . . . .	.	20,454 78	4,598 37	14,750 90	19,348 37	1,106 41
Blandford & Chester, . . . . .	.	26 00	—	—	—	26 00
Bolton, . . . . .	.	2,784 59	—	90 00	90 00	2,694 59
Columbia & Rensselaer, . . . . .	.	5,544 14	—	2,100 00	2,100 00	3,444 14
Crescent, . . . . .	.	725 00	—	—	—	725 00
Fall River Automatic, . . . . .	.	18,995 66 <sup>d</sup>	—	—	—	18,995 66 <sup>d</sup>
Granby, . . . . .	.	342 61	—	96 00	96 00	246 61
Heath, . . . . .	.	10,265 61	—	6,289 78	6,289 78	3,975 83
Highland, . . . . .	.	80 99	—	48 60	48 60	32 39
Littleton, . . . . .	.	198 90	—	—	—	198 90
Massachusetts, . . . . .	.	254 05	—	—	—	254 05
Massachusetts, . . . . .	.	7,549 06 <sup>d</sup>	—	—	—	7,549 06 <sup>d</sup>
Millers Falls, . . . . .	.	70 10	—	—	—	70 10
Mixer Brothers, . . . . .	.	64 76	—	—	—	64 76
New England Telephone and Telegraph, New England Telephone and Telegraph of Massachusetts, . . . . .	.	3,840,352 64	—	3,246,075 00	3,246,075 00	594,277 64
Northfield Farms, . . . . .	.	219 53	—	—	—	219 53
North Orange, . . . . .	.	28 57	—	—	—	28 57
Oakham & Coldbrook Springs, . . . . .	.	353 02	—	132 35	132 35	220 67
Providence, . . . . .	.	11,528 62	—	6,400 00	6,400 00	5,128 62
Richmond, . . . . .	.	208 10 <sup>d</sup>	—	193 20	193 20	401 30 <sup>d</sup>
Southern Massachusetts, . . . . .	.	—	—	—	—	—
State Line, . . . . .	.	16 07	—	—	—	16 07
Taghcanic, . . . . .	.	31 89 <sup>d</sup>	—	90 00	90 00	121 89 <sup>d</sup>
West Stockbridge Mutual, . . . . .	.	51 57 <sup>d</sup>	—	—	—	51 57 <sup>d</sup>
Totals, . . . . .	.	\$40,683,180 43	\$2,504,598 37	\$33,551,502 20	\$36,056,100 57	\$4,627,079 86

<sup>d</sup> Deficit.

TABULATED STATEMENT OF INCOME ACCOUNTS FROM REPORTS OF TELEGRAPH COMPANIES, YEAR  
ENDING JUNE 30, 1916.

TELEGRAPH COMPANIES.		Operating Revenue.	Operating Expenses.	Net Operating Revenue.	Non- Operating Income.	Gross Income.
Commercial Cable,	. . . . .	\$41,528 24	\$36,429 38	\$5,098 86	\$353 42	\$5,452 28
Martha's Vineyard Telegraph,	. . . . .	14,847 49	12,627 33	2,220 16	-	2,220 16
New England Telegraph,	. . . . .	11,469 80	14,200 48	2,820 68 <sup>d</sup>	-	2,820 68 <sup>d</sup>
Postal Telegraph Cable of Massachusetts,	. . . . .	391,620 79	395,578 89	3,958 10 <sup>d</sup>	13 08	3,945 02 <sup>d</sup>
United Telegram,	. . . . .	34,364 91	38,289 73	3,924 82 <sup>d</sup>	348 16	3,576 66 <sup>d</sup>
Western Union Telegraph,	. . . . .	56,054,199 93	38,697,382 32	17,356,817 61	1,544,177 86	18,900,995 47
Totals,	. . . . .	\$56,548,031 16	\$39,194,598 13	\$17,353,433 03	\$1,544,892 52	\$18,898,325 55

<sup>d</sup> Deficit.

*Tabulated Statement of Income Accounts from Reports of Telegraph Companies, Year Ending June 30, 1916—Concluded.*

TELEGRAPH COMPANIES.				Net Income.	Dividend Appropriations.	Total Appropriations.	Surplus.
			Deductions from Income.				
Commercial Cable,	.	.	.	\$4,990 15	-	-	\$462 13
Martha's Vineyard Telegraph,	.	.	.	-	\$500 00	\$500 00	1,720 16
New England Telegraph,	.	.	.	539 91	-	-	3,360 59 <sup>d</sup>
Postal Telegraph Cable of Massachusetts,	.	.	.	3,454 31	-	-	7,399 33 <sup>d</sup>
United Telegram,	.	.	.	-	-	-	3,576 66 <sup>d</sup>
Western Union Telegraph,	.	.	.	6,757,122 17	5,485,403 25	5,485,403 25	6,658,470 05
Totals,	.	.	.	\$6,766,106 54	\$5,485,903 25	\$5,485,903 25	\$6,646,315 76

<sup>d</sup> Deficit.

TABULATED STATEMENT OF INCOME ACCOUNTS FROM REPORTS OF EXPRESS COMPANIES, YEAR  
ENDING JUNE 30, 1916.

EXPRESS COMPANIES.	Gross Earnings.	Operating Expenses.	Net Earnings.	Miscellaneous Income.	Gross Income.	Deductions.	Net Divisible Income.	Dividends.	Surplus for Year.
Adams.	\$42,983,419.93	\$40,804,913.14	\$2,178,506.79	\$2,054,031.08	\$4,232,540.87	\$1,201,353.66	\$3,031,187.21	\$500,000.00	\$2,531,187.21
Alger & Co.,	8,312.71	6,580.55	1,732.16	-	1,732.16	-	1,732.16	-	1,732.16
American,	60,759,318.02	56,638,495.37	3,220,822.65	626,942.66	4,447,765.31	778,730.46	3,669,034.85	961,895.00	2,707,139.85
Armstrong Transfer,	321,104.08	283,229.78	37,874.30	-	37,874.90	4,400.26	33,474.64	13,750.00	19,724.64
Bailey's, South Natick & Wellesley,	27,244.96	26,353.47	886.49	-	886.49	296.45	590.04	-	590.04
Boston & Lawrence Despatch,	45,828.82	45,178.52	3,650.30	-	3,650.30	23.50	3,626.80	-	3,626.80
Boston, Providence & Fall River,	14,108.40	12,537.35	1,571.05	-	1,571.05	165.00	1,406.05	-	1,406.05
Bowman's, Bridgewater,	8,554.52	7,754.18	800.34	-	800.34	6.88	793.46	-	793.46
Brockton Transportation,	244,828.78	228,093.78	16,735.00	-	16,739.28	755.68	15,974.60	7,500.00	8,474.60
Bradford's,	7,735.77	7,085.20	650.48	-	650.48	64.32	586.16	-	586.16
Byam,	31,955.26	30,502.75	1,452.51	-	1,452.51	-	1,452.51	-	1,452.51
Carter, Russell & Co.,	9,033.44	8,980.21	53.23	-	53.23	-	53.23	-	53.23
Cumming's, Reading,	20,116.40	17,408.35	2,708.05	-	2,708.05	-	2,708.05	-	2,708.05
Cushing's, H. K.,	16,200.00	13,803.00	2,397.00	-	2,397.00	-	2,397.00	-	2,397.00
Dart,	33,113.68	33,187.10	2,926.58	-	2,926.58	142.96	2,783.62	600.00	2,183.62
Dennie's, Campello,	30,340.00	28,039.20	2,300.80	-	2,300.80	184.50	2,116.30	-	2,116.30
Dennie's,	11,927.00	11,927.00	-	-	-	-	-	-	-
Drew's,	6,156.30	5,518.84	637.46	-	637.46	-	637.46	-	637.46
Eaton's, Wakefield,	29,910.59	26,752.39	3,158.20	-	3,158.20	523.31	2,634.89	-	2,634.89
Estabrook,	12,047.29	11,609.79	437.50	-	437.50	66.78	370.72	-	370.72
Faunce,	9,512.25	8,834.25	678.00	-	678.00	39.25	638.75	-	638.75
Gibb's,	65,264.57	54,087.13	10,577.44	-	10,577.44	64.92	10,512.52	-	10,512.52
Hayward & Litch,	23,029.18	24,612.57	1,583.39d	-	1,583.39d	315.93	1,267.46	-	1,267.46
Houghton & Co.,	19,454.58	18,047.54	1,407.04	-	1,407.04	180.82	1,226.22	-	1,226.22
Howe & Co.,	30,641.40	29,241.33	1,400.07	-	1,400.07	517.43	882.64	-	882.64
Jenkins & Simmons',	14,907.25	12,893.81	2,013.45	-	2,013.45	22.20	1,991.25	-	1,991.25
Kidder Bros.,	5,200.00	5,560.00	360.00d	-	360.00d	12.60	372.60d	-	372.60d
Litchfield's,	12,203.00	8,854.76	3,351.24	-	3,351.24	-	3,351.24	-	3,351.24
Marshall & Moulton,	61,424.11	58,774.31	2,649.80	-	2,649.80	116.83	2,532.97	-	2,532.97
Marston,	35,247.97	33,148.89	2,099.08	-	2,099.08	262.46	1,836.62	-	1,836.62

McKee's,	16,826 00	14,758 05	2,067 95	-	2,067 95	172 10	1,895 85
Munroe & Arnold-Merritt,	205,388 95	199,366 55	6,022 40	-	6,022 40	3,607 47	2,414 93
New York & Boston Dispatch,	78,006 80	76,143 43	1,863 37	-	1,863 37	80 25	1,783 12
North Shore,	127,274 44	125,909 64	1,364 80	-	1,364 80	1,200 00	164 80
Parker's, Dedham,	19,933 57	19,193 09	740 48	-	740 48	56 98	683 50
Penniman's,	7,773 28	7,675 53	97 75	14 00	111 75	150 00	38 25d
Penniman's, <sup>1</sup>	2,152 30	2,147 68	4 62	14 00	18 62	48 00	29 38d
People's,	34,510 56	29,331 80	5,178 76	-	5,178 76	109 26	3,569 50
Pettingell & Dwelly,	22,940 60	18,994 45	3,946 15	-	3,946 15	-	946 15
Presson,	9,500 00	9,500 00	-	-	-	30 00d	30 00d
Richmond's,	5,651 92	5,828 61	176 69d	-	176 69d	13 44	190 13d
Sherborne-Coughlin,	23,466 82	22,378 02	1,088 80	-	1,088 80	-	1,088 80
Smith's,	25,112 92	25,368 52	255 60d	-	255 60d	208 98	464 58d
Smith & Co.,	36,406 63	33,906 72	2,502 91	-	2,502 91	-	2,502 91
Tenney's,	8,906 72	8,106 54	800 18	-	800 18	9 50	790 68
Thompson's,	57,495 87	57,495 87	-	-	-	-	-
Vance's,	5,605 68	4,517 54	1,088 14	-	1,088 14	-	1,088 14
Wheeler,	33,764 33	31,488 29	2,276 04	-	2,276 04	116 02	2,160 02
Wright's,	11,639 05	10,755 62	883 43	-	883 43	61 17	822 26
Total,	\$105,639,703 31	\$99,508,490 32	\$6,131,212 99	\$2,681,004 74	\$8,812,217 73	\$1,994,168 77	\$1,438,245 00
							\$5,329,803 96

<sup>1</sup> Period ending Sept. 25, 1915.<sup>d</sup> Deficit.



TABULATED STATEMENT OF INCOME ACCOUNTS FROM REPORTS OF VOLUNTARY ASSOCIATIONS, YEAR  
ENDING JUNE 30, 1916.

VOLUNTARY ASSOCIATIONS.		Gross Income.	Deduct- tions from Income.	Net Income.	Interest Charges.	Net Divisible Income.	Dividend Paid.	Surplus for Year.
Boston Suburban Electric Companies, . . . . .		\$146,332 77	\$4,869 75	\$141,463 02	\$45,418 44	\$96,044 58	\$93,793 00	\$2,251 58
Boston & Worcester Electric Companies, . . . . .		91,573 41	1,773 60	89,799 81	—	89,799 81	84,840 00	4,959 81
Massachusetts Consolidated Railways, . . . . .		3,687 00	4,115 43	428 43 <i>d</i>	4,334 28	4,762 71 <i>d</i>	38,753 00	43,515 71 <i>d</i>
Massachusetts Electric Companies, . . . . .		163,754 56	14,599 42	149,155 14	130,000 00	844 86 <i>d</i>	—	844 86 <i>d</i>
New England Investment and Security Company, . . . . .		592,270 90	16,400 61	575,870 29	411,270 00	164,600 29	160,000 00	4,600 29
New Hampshire Companies, . . . . .		114,046 78	934 74	113,112 04	11,130 79	101,981 25	67,990 00	33,991 25
Southern Electric Companies, . . . . .		9 06	541 01	531 95 <i>d</i>	—	531 95 <i>d</i>	—	531 95 <i>d</i>
Springfield Railway Companies, . . . . .		263,861 39	2,614 47	261,246 92	—	261,246 92	250,571 14	675 78
Worcester Railways and Investment Company, . . . . .		325,514 73	4,460 25	321,054 48	—	321,054 48	285,987 00	35,067 48
Totals, . . . . .		\$1,701,080 60	\$50,309 28	\$1,650,741 32	\$622,153 51	\$1,028,587 81	\$991,934 14	\$36,653 67

*d* Deficit.

STATEMENT OF INCOME ACCOUNTS FROM REPORT OF SLEEPING CAR COMPANY, YEAR ENDING JUNE 30,  
1916.

Gross Income.	Deductions from Income.	Net Income.	Interest Charges.	Net Divisible Income.	Dividend Paid.	Surplus for Year.
Pullman Company, . . . . .	\$44,692,246 09	\$13,033,272 99	\$60,514 71	\$12,972,758 28	\$9,507,840 01	\$3,464,918 27

The annual returns of the following steamboat and steamship companies, for the year ending Dec. 31, 1916, may be found in Volume II. of this report: —

Boston, Nahant & Pines Steamboat Company.

Cape Cod Steamship Company.

Gloucester Steamship Company.

Nantasket Beach Steamboat Company.

New Bedford, Martha's Vineyard & Nantucket Steamboat Company.

## COURT DECISIONS.

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### BOARD OF SURVEY OF ARLINGTON vs. BAY STATE STREET RAILWAY COMPANY.

MIDDLESEX. MARCH 20, 1916—JUNE 21, 1916.

RUGG, C.J. One of the clauses in the original location granted by the selectmen of the town of Arlington in 1897 to the Arlington and Winchester Street Railway Company, to whose rights, privileges and obligations the defendant has succeeded, was to the effect that "The rate of fare shall not exceed 5 cents from any point in Arlington to any point in Arlington or Winchester, or from any point in Winchester to any point in Arlington, on all lines now or in the future controlled or operated by said Company or by any Company or system of which said road may in the future form a part." The defendant, under the authority of St. 1913, c. 784, §§ 17, 19-22, 29, proposes to raise the rate of fare above five cents, subject to the approval of the public service commission. This suit in equity is brought to enjoin such action by the railway company.

The location here in question having been an original location granted by the selectmen and accepted by the directors of the street railway company before St. 1898, c. 578, took effect, the regulation of fares by agreement as a condition in the grant of the location was within the power conferred by the then existing statute upon the selectmen, and bound the street railway company to the same extent as if inserted in a special charter of incorporation. *Selectmen of Clinton v. Worcester Consolidated Street Railway*, 199 Mass. 279. *Selectmen of Westwood v. Dedham & Franklin Street Railway*, 209 Mass. 213. In granting locations for street railways, boards of selectmen and boards of aldermen are public officers and not agents of their respective towns and cities. The State exerts its sovereign power through them as its instruments. *Flood v. Leahy*, 183 Mass. 232. The Legislature has the power, so far as concerns these public officers and the municipalities by whom they were elected, to change or abrogate the terms of such locations. Although phrased in the form of a

contract and securing valuable financial obligations to the cities and towns, the power of the Legislature to modify to their loss such locations has been settled after great consideration and vigorous protest from the interested municipalities. *Springfield v. Springfield Street Railway*, 182 Mass. 41. *Worcester v. Worcester Consolidated Street Railway*, 182 Mass. 49; S. C. affirmed in 196 U. S. 539. See also *Southern Wisconsin Railway v. Madison*, 240 U. S. 457. Regulation of fares in this respect stands on no higher ground than requirements as to paving of streets. The paramount power of the Legislature over the subject of fares was recognized expressly in *Selectmen of Clinton v. Worcester Consolidated Street Railway*, 199 Mass. 279, at page 288.

The question, therefore, is reduced to one of statutory interpretation. It is whether the general control over fares has been vested in the public service commission by St. 1913, c. 784. That act marked a radical change in the policy of the Legislature in the regulation of street railways. It conferred upon the public service commission far greater powers over the operation and accommodations to be provided by such common carriers than had been vested in any board by earlier acts. Summarily stated, it clothed the commission with full power to require safe, reasonable and adequate service to the public from all common carriers. The authority of the commission as to supervision and regulation in other respects is ample. It is manifest that such broad powers justly cannot be exercised to the extent conferred by the words used except when joined either with equally full power to regulate charges, rates and fares, or with freedom of action by the carrier in these respects, so as to enable the carrier to receive a fair return for the service required. This power expressly is conferred by § 22, which after subjecting the rates and fares actually charged or demanded to their supervision, enacts that whenever the commission is of opinion "that the rates, fares or charges or any of them chargeable by any such common carrier are insufficient to yield reasonable compensation for the service rendered and are unjust and unreasonable, the commission shall determine the just and reasonable rates, fares and charges to be charged" and shall fix the same by order binding upon the carrier. That these words were intended to be interpreted according to their full natural scope is obvious from the provision of § 29, to the effect that "This act shall be deemed and construed as a remedial act and in enlargement and extension of all previous acts and existing laws conferring upon

or vesting in the commission any jurisdiction, powers or discretion with respect to any subject or matter treated in this act. Except as above provided all acts and parts of acts inconsistent with any provision of this act, and all acts and parts of acts which would in any way limit or prevent the exercise to the fullest extent of any of the jurisdiction, powers, authority or discretion delegated herein to the commission are hereby repealed." It is impossible to give the act a narrow or constricted construction as to the subject of fares.

There is no room for the binding force of stipulations as to fares in original grants of locations by local boards in the face of these sweeping provisions. Such stipulations are extinguished so far as inconsistent with the terms of St. 1913, c. 784. The plain purpose of the Legislature, in recognition of the fact that many street railways operate miles of tracks extending through numerous cities and towns, was to prescribe for the regulation of fares throughout the Commonwealth by a single public board, which may be expected to act with a broad and unbiased view for the promotion of the common good of all the conflicting interests involved and not under the influence of purely local considerations. The statute is a legislative determination that it is unwise and inexpedient longer to permit the full development of interurban transportation by street railways to be hampered by conditions as to fares contained in locations granted by the public officers of different municipalities. This conclusion is confirmed by the provisions of § 19, to the effect that "The commission shall not be prevented from taking such action as it may deem proper by any commitment or agreement of a common carrier entered into by reason of any requirement or recommendation of any board or public officers acting under delegated authority from the General Court prior to the enactment hereof." See *Keefe v. Lexington & Boston Street Railway*, 185 Mass. 183.

It is not necessary to determine what would be the effect of a reduction of fares against the protest of the street railway company below the rate fixed in the location.

This record simply presents a case where the original act of the State performed by the selectmen in granting a location to the street railway company has been modified in respect of fares by the State speaking through the paramount power of the Legislature, and that modification has been accepted by the street railway company. No one else can complain.



No question of estoppel arises on this record. The State acting through its Legislature in enacting the statute has waived in this respect, in view of the adoption of its present policy as to fares, whatever conditions the State acting through the selectmen had imposed in the public interests in the original location. Hence cases like *Rutherford v. Hudson River Traction Co.*, 44 Vroom, 227, and *People v. Suburban Railway*, 178 Ill. 594, upon which dependence is placed by the defendant, have no application.

The plaintiff relies strongly on *Detroit v. Detroit Citizens' Street Railway*, 184 U. S. 368. The irrelevancy of that decision to the facts here presented is demonstrated by *Worcester v. Worcester Consolidated Street Railway*, 196 U. S. 539.

While the public policy and statutory history of other States may be so different from that of this Commonwealth that decisions of other jurisdictions are by no means controlling, the conclusion here reached is in harmony with the reasoning of numerous cases. *Milwaukee Electric Railway & Light Co. v. Railroad Commission of Wisconsin*, 238 U. S. 174. *Duluth Street Railway v. Railroad Commission*, 161 Wis. 245. *Benwood v. Public Service Commission*, 75 W. Va. 127. *Public Service Electric Co. v. Public Utility Commissioners*, 2 Gummere, 128.

It follows that the subject of fares (with express and possible exceptions not here material) has been placed under the control of the public service commission. Its power is not restrained on the facts here disclosed by the condition in the original grant of location.

*Bill dismissed.*

WESTERN UNION TELEGRAPH COMPANY AND ANOTHER  
vs. CALVIN H. FOSTER AND OTHERS.

PUBLIC SERVICE COMMISSIONERS vs. WESTERN UNION  
TELEGRAPH COMPANY AND ANOTHER.

SUFFOLK. JANUARY 25, 1916-JUNE 19, 1916.

RUGG, C.J. These cases arise under St. 1913, c. 784. In substance the petition by the Western Union Telegraph Company and the United Telegram Company seeks a review and annulment of an order of the public service commission, while the public service commission by its petition seeks enforcement of such order. This order is designed to prevent unfair and unjust discrimination by the telegraph companies. The statute confers upon the public service commission ample powers to that

end. It also clothes the Supreme Judicial Court with jurisdiction to review, modify, or amend unlawful rulings and orders of the commissioners and to enforce its valid orders. §§ 2, 20, 27, 28.

The material facts are that the telegraph companies are furnishing to brokers and others in Boston continuous ticker quotations of transactions upon the New York Stock Exchange, which they are enabled to do by means of contracts between the telegraph companies and the New York Stock Exchange. The stock exchange is a voluntary association with its place of business in New York. Quotations of sales of stock on the New York Stock Exchange are collected by employees of the exchange, and, for a substantial consideration, furnished to each of the telegraph companies in New York under contracts which permit them to "furnish said quotations, or any part thereof, or any information therein contained, to its patrons by means of tickers, or by telegraph or telephone wires and instruments . . . subject to the limitations, conditions and provisions hereinafter contained," one of which is that such quotations shall not be furnished "to any subscriber thereof unless the subscriber shall have signed in duplicate an application therefor addressed to the Telegraph Company, and the subscriber shall have been approved by the Exchange," the intent of which is declared to be "only to prevent the unlawful or improper use of such quotations." The quotations are collected and delivered almost moment by moment as the sales occur during business hours on the stock exchange. The quotations as thus received in New York are transmitted as soon as may be by each of the telegraph companies to its Boston office. Each of the telegraph companies has a main office in Boston, where there are electrical appliances connected by a system of cables and wires under and across public ways with ticker instruments in the offices of its patrons. The quotations received from New York are delivered into the main Boston office in the Morse code over ordinary telegraph wires. Forthwith an employee operating a keyboard causes them to be written simultaneously by means of ticker instruments upon a tape of paper in the office of each patron, where they can easily be read. The result is that the quotations are reported on the ticker as the sales are made and within a brief time thereafter.

Foster applied to each company for this ticker service upon application forms prescribed by the contracts between the stock exchange and the telegraph companies, which were transmitted

by each company to the stock exchange for its approval. The stock exchange did not approve the applications and the telegraph companies refused to install the ticker service. Foster thereupon applied to the public service commission to be furnished with the service. He alleged in his petition that he had been engaged for a long time in the stock brokerage business in Boston, had previously been furnished with tickers, which were removed in 1914; that he had applied for a renewal of the service, had appeared before the appropriate committee of the New York Stock Exchange on two different occasions where he had submitted himself to examination and answered all questions asked; that in conducting his business he always has complied with the laws of this Commonwealth, and does not desire the quotations and ticker service for any unlawful or improper purpose, but for use in his legitimate brokerage business, which will suffer irreparable injury if he is unable to procure it. These allegations were not denied before the commission and cannot be challenged seriously here. The commission found that the petitioner was ready and willing to pay the price charged to other patrons of the telegraph companies for ticker service, and to comply with all reasonable rules and regulations, and that the telegraph companies simply had been notified that the exchange had disapproved the petitioner's applications, without stating any reason. The commission found that there was no evidence that the petitioner desired the quotations for unlawful or improper use, and that the telegraph companies were guilty of unjust and illegal discrimination in that, without just cause, they denied and refused to supply to Foster the quotations of the stock exchange by means of ticker service, and ordered the companies forthwith to remove such discrimination. The cases must proceed upon the footing that these findings of fact are true.

The quotations, when collected and tabulated by the exchange, constitute its private property. As such they are entitled to every protection afforded by law to any other private property. Like other property they may be kept by their owners to themselves, or sold or distributed to others, or made known to some and denied to others. Their communication to many different persons under contracts does not make them public and is not such a publication as destroys their character as property. Strangers may be restrained from wrongfully obtaining possession of the information, and wrongdoers will be prevented from intermeddling with it. These propositions are not now open to

question. *F. W. Dodge Co. v. Construction Information Co.*, 183 Mass. 62.

The stock exchange has not undertaken to distribute this information itself. It does not deal immediately with those who receive it by means of the ticker service. It has no contractual relation direct or indirect with the users of ticker service. It does not send the quotation to such users. Under its contract it "agrees, at its own expense, to furnish to the Telegraph Company" the quotations. The telegraph company in turn is authorized to "furnish said quotations, or any part thereof, or any information therein contained, to its patrons by means of tickers," or otherwise. One significant feature of this arrangement is that it is made with a common carrier of intelligence, whose facilities for practically instantaneous transmission of the stock quotations throughout the country are of the best. Manifestly the use of the information most advantageous to the stock exchange is dependent upon its swiftly coming to the knowledge of those likely to be customers of its members. It seems obvious that the reason for making such contracts with telegraph companies is founded chiefly on their facilities for immediate transmission of the quotations to different parts of the country, facilities possessed by these companies solely because they are performing a *quasi* public function as common carriers. The persons to whom quotations may be furnished are described in the contract between the stock exchange and each of the telegraph companies as "patrons" of the telegraph company. That is the exactly correct word to describe the relation contemplated by the contract between the telegraph company and the user of the ticker. The user of the ticker is a customer of the telegraph company. He is not the recipient of messages from the stock exchange nor its customer nor contractee. That is plain from the frame of the contract. The transaction constitutes in effect a kind of sale of the quotations from the stock exchange to the telegraph company. The stock exchange does not use the telegraph company as a means for selling its property to others. It makes a sale directly to the telegraph company. The stock exchange receives annually from the telegraph company a large sum of money for the delivery of the information. The sender of ordinary messages is not paid by the telegraph company for sending them. To treat that annual payment as on account of sending messages would constitute a gross preference of the stock exchange over the rest of the public sending telegraphic messages.



Such an intent cannot be presumed. The amount of the payment to the stock exchange as far as disclosed by the contract, bears no direct relation to the amount which the telegraph company may receive from its ticker service. Plainly it is not the ordinary case of one person sending messages to another by the telegraph for a tariff charge. In this connection the telegraph company is not acting wholly as a common carrier in the conventional sense. It is conducting the business of distributing information on its own account through facilities acquired and held by it because it is a common carrier, not for a fixed transportation charge, but for its own profit. Having paid a gross sum for the information, it proceeds to make whatever money it rightly may by disseminating that information at its own expense and through its own instrumentalities, to such customers as it may secure. It has the right to subdivide the quotations and rearrange them, and to deliver them in whole or in part or in such combination as it chooses. That is one of the express terms of its contract. The affair becomes its venture and not primarily or in this aspect at all the venture of the stock exchange. The only limitations professed to be expressed by the contract upon the absolute right of the telegraph company to deal with the quotations as its own are those tending to prevent the destruction of their value by being taken surreptitiously or otherwise, none of which are here in question, and that no one shall be furnished a ticker without approval of the stock exchange, for the single purpose of preventing the illegal use of the information. It cannot be contended on this record that that is the real ground of the refusal by the stock exchange to approve the application of Foster. No evidence of consequence was offered before the commission on this ground. The privilege conferred upon the telegraph company and the rights acquired by it under the contract are not solely those of a common carrier or the ordinary transmitter of intelligence. They savor of those of a proprietor dealing with his own. It does not seem necessary to analyze more accurately the kind of transaction entered into between the stock exchange and the telegraph company. The latter acquired a kind of right in the quotations which has some of the incidents of property. *Illinois Commission Co. v. Cleveland Telegraph Co.*, 56 C. C. A. 205. When the stock exchange parted with that right to such a person as a telegraph company, it subjected that right to the necessary characteristics and limitations which inevitably attach to rights belonging to such



an owner. Whatever may be said as to the right of a *quasi* public corporation to acquire purely private property has no application to the facts here disclosed. The property acquired by the telegraph companies in the stock quotations has no value to them except as they use their public franchises, granted and exercised solely because of the public service they are organized to render, in sending these quotations to financial centers for distribution by sale to their patrons. They are able to secure patrons in the case at bar solely through the exercise of their public functions in and under the streets of Boston. Such property, destined to such use as are the quotations, is as subject to public regulation in its use as are its other public functions. The property right is merely incidental to the public service function.

Telegraph companies exercise a public employment and are bound to serve all the public without discrimination. They may impose proper rules to which their patrons must conform, but these regulations must apply alike to all. They are a kind of common carrier. *Primrose v. Western Union Telegraph Co.*, 154 U. S. 1. *Pensacola Telegraph Co. v. Western Union Telegraph Co.*, 96 U. S. 1. *Western Union Telegraph Co. v. Call Publishing Co.*, 181 U. S. 92. *Marconi Wireless Telegraph Co. of America v. Commonwealth*, 218 Mass. 558, 568. *Cumberland Telephone & Telegraph Co. v. Kelly*, 87 C. C. A. 268. They are subject to regulation under legislative authority on the ground that they are impressed with a public character. They are enabled to use public ways in Boston for wires and conduits and underground cables and thus to carry on their business, including the ticker service, only because they carry on business of a public character which is to be exercised under public control. *Pierce v. Drew*, 136 Mass. 75. *New England Telephone & Telegraph Co. v. Boston Terminal Co.*, 182 Mass. 397, 399. See *Attorney General v. Haverhill Gas Light Co.*, 215 Mass. 394. When such corporations have acquired rights in the disposal of which the public are interested, they must deal with those rights in accordance with the requirements of public regulations. The rights which these telegraph companies have acquired in connection with the quotations are beyond those merely incident to the transmission of intelligence from one person to another. They involve the distribution and dissemination of information as to which it has assumed far greater duties than those of simple transmission, and as to which its facilities growing out of its public character

must be used. In this respect the case at bar is strictly analogous to those where patentees of telephones have undertaken to lease instruments subject to a limitation inconsistent with the public duties of the lessee, or which disable the lessee from performing its full obligation to the public. Many such cases have arisen and it generally has been held that such limitations have been repugnant to the general purpose of the lease of telephones, which is to serve the public without discrimination or favor. *State v. Bell Telephone Co.*, 23 Fed. Rep. 539. *Delaware & American Telegraph & Telephone Co. v. State*, 2. C. C. A. 1. *State v. Telephone Co.*, 36 Ohio St. 296. *Commercial Union Telegraph Co. v. New England Telephone & Telegraph Co.*, 61 Vt. 241. *Chesapeake & Potomac Telephone Co. v. Baltimore & Ohio Telegraph Co.*, 66 Md. 399, 416. See *Heaton-Peninsular Button-Fastener Co. v. Eureka Specialty Co.*, 25 C. C. A. 267, 272; *Bement v. National Harrow Co.*, 186 U. S. 70, 91; *Union Trust & Savings Bank v. Kinlock Long Distance Telephone Co.*, 258 Ill. 202. See to the contrary, *American Rapid Telegraph Co. v. Connecticut Telephone Co.*, 49 Conn. 352.

It is a necessary consequence that the property or quasi property rights acquired by the telegraph companies in the quotations under their contracts with the stock exchange are subject to regulation by public boards to the extent authorized by St. 1913, c. 784, and exercised by the order of the public service commission here under review.

It follows that the condition in the contracts between the telegraph companies and the stock exchange, whereby the attempt is made to limit the persons, among law abiding citizens, to whom the quotations may be delivered, cannot stand against regulation by a public authority to insure indiscriminate distribution.

There is nothing inconsistent with this conclusion in *Board of Trade of Chicago v. Christie Grain & Stock Co.*, 198 U. S. 236, *Hunt v. New York Cotton Exchange*, 205 U. S. 322, and *Board of Trade of Chicago v. Cella Commission Co.*, 76 C. C. A. 28. Those decisions protect the owners of quotations against theft. They involve no principle touching the regulation of service rendered by a telegraph company respecting information as to which it has assumed obligations and acquired rights such as those here disclosed.

There are numerous decisions, some by courts not of last resort, upon questions more or less similar to the one here pre-

sented. The result here reached is supported by the principle followed in *Smith v. Gold & Stock Telegraph Co.*, 42 Hun, 454, *Friedman v. Gold & Stock Telegraph Co.*, 32 Hun, 4, *Shepard v. Gold & Stock Telegraph Co.*, 38 Hun, 338, *Western Union Telegraph Co. v. State*, 165 Ind. 492, 500, 501, *New York & Chicago Grain & Stock Exchange v. Board of Trade of Chicago*, 127 Ill. 153, and *Tucker v. Western Union Telegraph Co.* decided by the Supreme Court of Erie County, New York, in June, 1915, affirmed by Appellate Division in November, 1915, 156 N. Y. Supp. 1148, and is contrary to *Matter of Renville*, 46 App. Div. (N. Y.) 37, *Sterrett v. Philadelphia Local Telegraph Co.*, 18 Weekly Notes of Cases, 77, and perhaps to *T. Griffin & Co. v. Western Union Telegraph Co.*, 8 Ohio Decisions Reprint, 572, *Cain v. Western Union Telegraph Co.*, 10 Ohio Decisions, Reprint, 72.

The jurisdiction of the public service commission extends to telegraph companies by the express terms of St. 1913, c. 784, § 2. The use of wires and conduits in and under the streets by the telegraph companies in the ticker service renders that kind of service subject to public regulation. It is the "transmission of intelligence within the Commonwealth by electricity," and "service" connected therewith as the word "service" is used in §§ 2, 10, 14, 17, 20, 22, 23 of the statute.

In this aspect of the case it is unimportant that the stock exchange is not a party to the proceedings. Whatever may be its interest in the subject matter, it is not a necessary party.<sup>1</sup> These proceedings deal only with the rights acquired by the telegraph companies in the quotations. Cases like *Lawrence v. Smith*, 201 Mass. 214, and *Gregory v. Stetson*, 133 U. S. 579, 586, are not pertinent in this connection. The rights here in issue arise under an attempted legislative regulation of the conduct of a public service corporation, and hence cases like *Express Cases*, 117 U. S. 1, where that element was absent, are not apposite.

The contract between the stock exchange and the telegraph companies was made subsequent to the enactment of the statute.<sup>2</sup> Manifestly such a contract cannot be pleaded in bar to the valid exercise of the police power under that statute. Contracts, though enforceable when made, are not enforceable to override such an exercise of the police power. *Louisville & Nashville*

<sup>1</sup> Of course the stock exchange, being a voluntary unincorporated association, could not technically be made a party. It is unnecessary to explain at length how the interests of its members might be represented in a suit like the present. *Pickett v. Walsh*, 192 Mass. 572, 589, 590. *Wilkinson v. Stitt*, 175 Mass. 581, 584.

<sup>2</sup> The contract in force when the order was passed was dated July 1, 1914. St. 1913, c. 784, went into effect on July 1, 1913. See § 30 of that statute.



*Railroad v. Mottley*, 219 U. S. 467, 480. *New York Central & Hudson River Railroad v. Gray*, 239 U. S. 583.

It seems to us to follow that the telegraph companies are not exonerated from complying with an otherwise lawful order of the public service commission by the terms of their several contracts with the stock exchange.

The transactions disclosed on this record as having been dealt with by the public service commission, in our opinion did not constitute interstate commerce. The sending of the quotations from New York to Boston over wires in the ordinary course of telegraphy manifestly was interstate commerce. But, as has been pointed out, the telegraph companies as to their ticker service sent no messages from New York to the individual ticker subscriber. The quotations as messages were sent by the Morse code from New York to the telegraph companies at their Boston offices. The quotations there were transferred by their own employees to instruments of a different character. By the ticker service the information was delivered to their patrons in Boston. The telegraph companies, in making this transmutation from the Morse code telegraphic message, by which the quotations came from New York to their Boston offices, to the plain English of the tape on the ticker service through their own instrumentalities and mechanical devices, and through their own servants in their Boston offices, were pursuing a course somewhat, although not precisely, analogous to breaking bulk of merchandise received by interstate commerce, putting it into smaller packages and delivering it in retail trade. The interstate transmission ended when the quotations reached the Boston offices of the telegraph companies. The subsequent acts in delivering the information upon the tickers in the offices of their customers were new and independent transactions. It was in effect a sale at retail of the information which had been received by interstate commerce. In principle it is the same as if the telegraph companies had caused to be set up in type the information after it was received at their Boston offices and sent by a printed sheet to each of their patrons. It accomplishes the same result through the mechanism of the ticker. No messages have been received in New York directed to their patrons, who are subscribers to the ticker service. The telegraph companies have secured their patrons by their own efforts, and for consideration paid directly by the patrons to the telegraph companies and wholly retained by the latter to their own uses, delivery is made

of the quotations to the patrons. That transaction, so far as touches compensation, is entirely between their patrons and the telegraph companies. No one else has any connection with that matter. The stock exchange has no concern with it.

The immunities and characteristics which inhere in an original package are not applicable to such transactions and afford no protection against State regulation of retail sales or distribution of imports. *Austin v. Tennessee*, 179 U. S. 343. *Mutual Film Corp. v. Industrial Commission of Ohio*, 236 U. S. 230, 240. The principle of sales in the original package of goods transported in interstate commerce is foreign to these facts. The nature of the business transacted by the telegraph companies is such that the information contained in the quotations has no value to hold and to keep. Its valuable quality is in practically instantaneous transmutation into articulate form and impartation to large numbers of purchasers. The power to regulate by the State does not depend at all upon the source from which the information is derived, but upon the means adopted for its distribution and communication through wires and conduits in the public streets of a domestic municipality.

These transactions are different in their nature from continuous transportation of merchandise in interstate commerce, notwithstanding change in bill of lading, interruption of transit, and the like, where the initial purpose to transport by interstate or foreign commerce and the movement of the merchandise in such transportation is not changed but continues unbroken from the beginning despite temporary suspension. Cases like *Texas & New Orleans Railroad v. Sabine Tram Co.*, 227 U. S. 111, and *Illinois Central Railroad v. Railroad Commission of Louisiana*, 236 U. S. 157, 163, which illustrate that principle, are inapplicable to the facts in the case at bar.

It is not necessary to multiply citations to show the fullness and completeness of the control of Congress over interstate commerce. It is indisputable. *Minnesota Rate Cases*, 230 U. S. 352, 398-412. *Houston, East & West Texas Railway v. United States*, and *Texas & Pacific Railway v. United States*, 234 U. S. 342, 351. *Kirmeyer v. Kansas*, 236 U. S. 568. The binding authority of these and like decisions is implicitly recognized. They do not seem pertinent to the facts of this record. While no analogy between information and chattels can be perfect, the case at bar in principle is indistinguishable from a purchase of a quantity of like books by the telegraph companies in New



York for a gross price for the lot, the transportation of these in interstate commerce to their Boston offices, where the original packages are opened and single books sold there to individual customers, to whom they are delivered by messengers of the telegraph companies. The method of dealing with them after the interstate commerce is ended by delivery in bulk at the main offices is no part of interstate commerce. In this respect the case is like the cabs of the railroad employed solely in the local transportation of passengers who have come in interstate travel, which are subject to local regulation and are not a part of interstate commerce. *Pennsylvania Railroad v. Knight*, 192 U. S. 21. The ticker service under the circumstances here disclosed is "subject to the law of the State." *Mutual Film Corp. v. Industrial Commission of Ohio*, 236 U. S. 230, 241.

The federal interstate commerce act does not appear to us to apply to the transactions here in question. U. S. St. of June 18, 1910. 36 U. S. Sts. at Large, c. 309, § 7. That act relates to the transmission of messages by telegraph in interstate commerce. So far as that act manifests a purpose to regulate the field over which Congress has paramount authority, the right of the State to exercise its police power in the same field ceases to exist, no matter whether the particular act of Congress covers it entirely or not. The police power of the State may be put forth as to a subject not prohibited to the States and within national jurisdiction only when by the silence of Congress the nation has left it open. But when Congress speaks, then it supersedes existing, and prevents future, legislation by the several States on that subject. *Commonwealth v. Boston & Maine Railroad*, 222 Mass. 206, 210. *Atchison, Topeka & Santa Fé Railway v. Harold*, 241 U. S. 206, 210. The act of Congress here in question does not cover the local delivery by the ticker service radiating from Boston offices, to patrons in that city of each of the telegraph companies, of information bought by the telegraph companies and received in interstate commerce, but delivered in intrastate commerce under the circumstances disclosed in the cases at bar. Therefore, cases like *Northern Pacific Railway v. Washington*, 222 U. S. 370, *Erie Railroad v. New York*, 233 U. S. 671, 681, *Port Richmond & Bergen Point Ferry Co. v. Hudson County*, 234, U. S. 317, 330, *Southern Railway v. Railroad Commission of Indiana*, 236 U. S. 439, 447, *Charleston & Western Carolina Railway v. Varnville Furniture Co.*, 237 U. S. 597, *Western Union Telegraph Co. v. Bilisoly*, 116 Va. 562, have no application.

Great stress has been laid in argument upon the danger of the use of quotations by bucket shops. It has been urged that the only effective way, in view of the elusive methods pursued by those violators of the law, of preventing such abuse, is for the stock exchange to have and exercise the power absolutely and without review to approve or to disapprove the applicants for ticker service. The evils arising from that form of gambling need not be minimized. But the accomplishment of a laudable result does not justify the use of means condemned by a public board acting in accordance with a legislative enactment. The present case, however, upon the express finding of the public service commission, goes upon the footing that Foster is not subject to imputation in respect of a bucket shop.

In the view which we take of the case it becomes unnecessary to discuss or decide whether the order may be sustained also as affecting interstate commerce only incidentally and not imposing a direct burden upon it within the principle declared in numerous cases. See, for example, *Western Union Telegraph Co. v. James*, 162 U. S. 650; *Western Union Telegraph Co. v. Commercial Milling Co.*, 218 U. S. 406, 416; *Vermilye v. Western Union Telegraph Co.*, 207 Mass. 401; *Commonwealth v. Peoples Express Co.*, 201 Mass. 564, 578; *Atlantic Coast Line Railroad v. Glenn*, 239 U. S. 388; *Illinois Central Railroad v. Mulberry Hill Coal Co.*, 238 U. S. 275; *Pennsylvania Railroad v. Puritan Coal Mining Co.*, 237 U. S. 121; *Missouri, Kansas & Texas Railway v. Harris*, 234 U. S. 412; *Missouri Pacific Railway v. Larabee Flour Mills*, 211 U. S. 612; *St. Louis, Iron Mountain & Southern Railway v. Arkansas*, 240 U. S. 518.

The petition of the telegraph companies is to be dismissed with costs. In the petition by the public service commissioners, a decree is to be entered enjoining the telegraph companies to comply with the order of the public service commission.

*So ordered.*

**DISTRICT COURT OF THE UNITED STATES.****District of Massachusetts.**

**HENRY G. S. NOBLE v. WESTERN UNION TELEGRAPH CO.  
AND CALVIN H. FOSTER.**

ON MOTION TO DISMISS, FILED AUG. 23, 1916, BY MASSACHUSETTS PUBLIC  
SERVICE COMMISSION.

No. 738 EQUITY.

OPINION (DECEMBER 19, 1916).

DODGE, J. The members of the above Commission, made defendants by an amendment to the bill filed Aug. 3, 1916, having appeared in compliance with the summons issued, filed this motion to dismiss, which asserts that the Court is without jurisdiction; and also that the contract whereon the bill bases the plaintiff's alleged rights is illegal and void, because in violation of the Interstate Commerce Acts, if these apply as claimed in the bill.

1. The only jurisdictional question presented is whether or not the allegations of the bill present a Federal question. It is conceded that diverse citizenship of the parties does not sufficiently appear.

The bill alleges (par. 12) that the order made by the Public Service Commission, the confirming order of the Massachusetts Supreme Judicial Court, and the Massachusetts Statute whereon both are based, as set forth in the preceding paragraphs of the bill, are unconstitutional, in that they deprive the New York Stock Exchange, a voluntary association represented by the plaintiff as its president, of its property, without due process of law.

The relief prayed for is (1) that said statute be declared unconstitutional so far as it empowers the Commission to make or enforce such order, (2) that the order be declared void, (3) that the defendant Telegraph Company be enjoined from obeying it, and the defendant Foster from accepting the quotations which said Company has been ordered to furnish him, except upon compliance with the plaintiff's regulations respecting them, which regulations said Company is bound to follow, by the terms of its contract with said Stock Exchange.

The motion to dismiss asserts that no right of the Stock Exchange has been infringed or threatened by said Commission or by any act of theirs, so far as shown by the bill.

On behalf of the Commission it is conceded that in the in-

formation consisting of the quotations produced by sales of stock and bonds on its floor the Stock Exchange has, to a certain extent, a property right. By its above contract with the Telegraph Company it has agreed, as set forth in the bill, to furnish said quotations to the latter and has authorized said Telegraph Company to furnish them to any person anywhere in the United States and Canada outside a certain district, with the qualification that they shall not be furnished by continuous service as defined in the contract to any person whose application therefor, to be made in a prescribed form, has not been duly approved by said Stock Exchange. The contract further provided that in case of failure on the part of any person whose application had been approved to comply with the conditions, restrictions and limitations therein contained, said Telegraph Company would terminate the contract under which such person might be receiving said quotations and discontinue furnishing them to him. The Telegraph Company was left to fix its own terms for the service it was thus authorized to render with the person receiving it. The contract further provided that said Stock Exchange should receive \$50,000 a year from said Telegraph Company. The plaintiff's claim, as stated in Par. 12 of its bill, is that said market quotations when collected and distributed as above constitute its property, that, being its property, it may fix a price at which it will sell the same and select persons to whom it will furnish the same, that it has the right to avail itself of the services of any common carrier operating either wholly within the State, or beyond the limits of a single State, for the purpose of delivering its said quotations to persons whose application therefor it shall accept; that the above Statute and orders thereon based require said Telegraph Company to break said contract by giving said quotations to said defendant Foster (whose application for service it has disapproved) and therefore deprive it of its said property without due process of law.

The Commission found, as is set forth in the bill, upon Foster's complaint to it, that refusal to transmit said quotations to him upon the same terms that they were transmitted to others was unlawful discrimination on the part of said Telegraph Company; and its order to said Company, afterward confirmed by the Massachusetts Court, was "to remove said discrimination forthwith." It contends here that its said finding and order in no way took or injured any property right of the Stock Exchange either with or without due process of law.



A copy of the above contract being annexed to the bill, it is thus before the Court in full. While it remains in force, whatever rights with regard to the quotations to which it relates remain in the plaintiff, they are not such rights as Par. 12 of the bill asserts, because the plaintiff cannot claim to be delivering said quotations through the services of a common carrier of its own selection, to persons in Massachusetts selected by it, at prices fixed by it. Such a claim is inconsistent with the construction of the same contract adopted by the Supreme Court of Erie County, New York, in a decision affirmed by the Appellate Division Nov. 17, 1915 (*Tucker v. Western Union Co.*, 158 N. Y. Supp. 1148), a copy whereof is before me, and with that adopted by the Massachusetts Supreme Judicial Court in the case to which this bill refers (224 Mass. 365). According to these decisions, though the Telegraph Company's business is that of a common carrier and its facilities as such are availed of in making the contract it is not, under the contract, transmitting Stock Exchange messages for hire as a common carrier; if it were they would be paid for by the Exchange. On the contrary the Telegraph Company buys the quotations from the Exchange for a substantial price, and the rights of the Exchange in them pass to and become vested in the Telegraph Company to such an extent as enables the latter, having thus acquired them, to deal with them as its own, subject to the limitations agreed on with the Exchange and to those imposed by law. With these views as to the Telegraph Company's position under the contract I agree, and, adopting them, I am unable to hold that there remain in the plaintiff such property rights in the quotations in question as it here claims.

The plaintiff has not undertaken to show, and I am unable to see, how there can remain in it under said contract property rights of any description other than the above with which the order complained of can be said to interfere. The allegation in Par. 12 of the bill, that the order requires the Telegraph Company to break its contract "by giving said quotations to said Foster," must be considered in connection with what appears from the preceding paragraphs, which show that the Telegraph Company is required to give the quotations to Foster only because of the Commission's finding that its refusal to do so was without just cause and was therefore discrimination contrary to the Massachusetts Statute. Nowhere in the bill is it claimed or suggested that said finding was unjustified by the



evidence whereon the Commission acted or that the order was unjustified under the Statute if the finding was justified. The contract having been made, as has been stated, while the Statute was in force, must be presumed to have been made in view of it and to have contemplated that the Telegraph Company could not be required under it to make any unlawful discrimination in furnishing the quotations.

2. Discrimination without just cause on the part of a Telegraph Company is forbidden both by the Massachusetts laws, and by the Acts of Congress regulating interstate commerce. The plaintiff, after allegations setting forth in some detail the method followed by it in transmitting these quotations from New York to the Telegraph Company in Boston and by the latter in distributing them to its customers in Boston, claims in Par. 10 of its bill that the said transmission and distribution is interstate commerce, which Congress alone has power to regulate, that Congress has vested in the Interstate Commerce Commission "exclusive jurisdiction of all proceedings, suits or actions affecting or controlling the distribution of said quotations," and that the Massachusetts legislation establishing the State Public Service Commission, with jurisdiction to hear complaints respecting "the distribution of said quotations," the Commission's order "directing the delivery of said quotations to said Foster" and the order of the State Court confirming the order of the Commission are all of them void.

If this claim can be maintained and if it can be said that the order requiring discontinuance of the unlawful discrimination deprived the plaintiff of any property right belonging to it, it was not so deprived by due process of law, but by a Commission and a Court without power to act in the matter.

The same facts in substance as the plaintiff has alleged here in support of its above claim appear to have been brought before the Massachusetts Court upon the Telegraph Company's petition to review the State Commission's order. *Western Union &c. Co. v. Foster*, above cited, 224 Mass. 365. The present plaintiff was not made a party in that case, and the Court held that it was not a necessary party; but in the facts alleged by it here I find nothing to distinguish this case from that there considered, so far as the present question is concerned. Upon full and careful consideration it was there held that the Interstate Commerce Acts did not apply to or cover the local distribution of these quotations, bought by the Telegraph Company in interstate

commerce, but delivered by it in intrastate commerce under the circumstances disclosed. With this conclusion and the reasoning of the Court in support thereof, I agree. While transmission of the quotations from the plaintiff in New York to the Telegraph Company in Boston was governed by the Interstate Commerce Acts, none of the arguments relied on to show that those Acts also continued to govern their further transmission by the Telegraph Company from Boston to applications for them in Massachusetts seem to me adequate for the purpose, in view of the rights in them passing under the contract to the Telegraph Company, as above. I therefore consider the facts alleged in the bill insufficient to warrant the plaintiff's claim that the State legislation was inapplicable and the State authorities without jurisdiction.

The motion is therefore granted and there may be a decree dismissing the bill.

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**DISTRICT COURT OF THE UNITED STATES.**

**District of Massachusetts.**

**HENRY G. S. NOBLE v. UNITED TELEGRAM COMPANY  
AND CALVIN H. FOSTER.**

ON MOTION TO DISMISS, FILED AUGUST 23, 1916, BY MASSACHUSETTS PUBLIC  
SERVICE COMMISSION.

No. 739 EQUITY.

OPINION (DECEMBER 19, 1916).

DODGE, J. The bill and motion to dismiss the same in this case are in all respects similar to those in No. 738 Equity wherein an opinion is this day filed. The two cases were heard together and what is said in the opinion referred to applies to the present case as well.

The motion is therefore granted and there may be a decree dismissing the bill.



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# APPENDIX.

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## APPENDIX.

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### SPECIAL REPORTS AND ORDERS RELATING TO RAILROADS, STREET RAILWAYS, ELECTRIC RAILROADS, STEAMBOATS, TELEPHONE, TELEGRAPH AND EXPRESS COMPANIES.

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#### THE BAY STATE RATE CASE.

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*Notice of the Bay State Street Railway Company of proposed changes in fares and fare limits and in transfer privileges upon its railway.*

*Petition of the aldermen of Fall River that the Commission cause the Bay State Street Railway Company to issue ten-trip tickets over any of its lines within the limits of that city for thirty cents.*

*Petition, transmitted by the municipal council of the city of Lynn, of legal voters of said city, that the Commission examine the condition and operation of the Bay State street railway, alleging grounds of complaint with reference to rates, fares and charges fixed, collected and made by said company as unjust, unreasonable, discriminatory and unduly preferential.*

*Petition of the selectmen of Saugus that the Commission examine the condition and operation of the Bay State street railway, and alleging certain grounds of complaint.*

*Petition in remonstrance of the selectmen of Burlington against proposed increase in fare from five cents to eight cents upon the Bay State street railway from some parts of Burlington to Woburn square.*

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P. S. C. 1085.

DECIDED AUGUST 31, 1916.

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JAMES F. JACKSON	}	for Bay State Street Railway
SHELDON E. WARDWELL		Company.
WILLIAM J. COUGHLIN	}	for town of Abington.
JAMES H. CROWLEY		
PHILIP A. HENDRICK		for town of Arlington.
HARRY M. EAMES	}	for town of Andover.
DANIEL J. MURPHY		

- HERMAN A. MACDONALD, Mayor } for city of Beverly.  
 GUY C. RICHARDS }  
 ALLISON G. CATHERON for Beverly Board of Trade.  
 STEPHEN J. GILMAN for certain Improvement Associations of  
 Billerica.  
 HARTLEY L. WHITE for town of Braintree.  
 WILLIAM F. WHITE for Braintree Club.  
 JOHN F. BURBANK, Mayor } for city of Brockton.  
 W. M. WILBAR }  
 E. GERRY BROWN for certain labor organizations in Brockton  
 and adjoining towns and Brockton Chamber of Commerce.  
 HORACE B. SKELTON } for town of Burlington.  
 EDWARD JOHNSON }  
 FREDERIC A. FISHER for town of Chelmsford.  
 LOUIS R. KIERNAN } for city of Chelsea.  
 JOHN E. BECK }  
 HARRY E. JACKSON for town of Danvers.  
 JOHN A. HIRSCH { for town of Dedham, East Dedham Business  
 GEORGE D. GIBB { Men's Association and Dedham Board of  
 Trade.  
 JOSEPH E. WARNER } for town of Dighton.  
 CHARLES S. CHASE }  
 WARREN W. FOX for town of Dracut.  
 E. S. WHITMARSH } for town of East Bridgewater.  
 CHARLES E. BURBANK }  
 DANIEL F. BUCKLEY for town of Easton.  
 AARON COGSWELL } for town of Essex.  
 ALBION RIGGS }  
 FRANK E. RAYMOND }  
 JAMES CHAMBERS, Mayor } for city of Everett.  
 E. LEROY SWEETSER }  
 JAMES H. KAY, Mayor } for city of Fall River.  
 GEORGE GRIME }  
 WILLIAM F. C. GRAY, Alderman }  
 WILLIAM A. HART for Fall River Board of Trade.  
 WILLIAM BRAY for town of Georgetown.  
 CHARLES H. BARRETT, Mayor } for city of Gloucester.  
 JOHN J. CUNNINGHAM }  
 HENRY F. BROWN for Gloucester Board of Trade.  
 FRANK E. NOYES for town of Groveland.  
 EDWIN F. DWELLEY for certain citizens of Hanover.  
 ALBERT H. BARTLETT, Mayor } for city of Haverhill.  
 FREDERICK H. MAGISON }

- DANIEL M. CASEY for Haverhill Board of Trade.  
 J. O. BURDETT for town of Hingham.  
 LOUIS E. FLYE for town of Holbrook.  
 E. WORTHINGTON } for Hyde Park district and certain adjoining  
 PHILIP P. COVENEY } towns.  
 ALBERT F. WELCH for town of Ipswich.  
 GEORGE W. STETSON for town of Lakeville.  
 JOHN J. HURLEY, Mayor } for city of Lawrence.  
 DANIEL J. MURPHY }  
 GEORGE E. RIX for Lawrence Chamber of Commerce.  
 HAROLD A. VARNUM for city of Lowell.  
 ROBERT F. MARDEN } for Lowell Board of Trade.  
 JOHN F. MURPHY }  
 ARTHUR G. WADLEIGH for city of Lynn and Essex County Associated Boards of Trade.  
 RALPH S. BAUER for Lynn Chamber of Commerce.  
 HARVEY L. BOUTWELL for city of Malden.  
 W. H. HENDERSON for Malden Planning Board.  
 E. B. O'BRIEN for town of Marblehead.  
 EDWARD E. ELDER for city of Medford.  
 FRANK B. GILMAN for Medford Hillside Men's Club.  
 CHARLES H. ADAMS, Mayor }  
 ARTHUR S. DAVIS } for city of Melrose.  
 WILLIAM A. CARRIE, Alderman }  
 W. L. STEDMAN for town of Methuen.  
 GEORGE W. STETSON for town of Middleborough.  
 THOMAS W. BLANCHARD for Middleborough Commercial Club.  
 SAMUEL W. WRAGG for town of Needham.  
 EDWARD R. HATHAWAY, Mayor } for city of New Bedford.  
 HENRY E. WOODWARD }  
 RICHARD T. NOYES for town of Newbury.  
 CLARENCE J. FOGG, Mayor, for city of Newburyport.  
 A. E. BARBER for town of North Reading and North Reading Board of Trade.  
 JAMES A. HALLORAN for town of Norwood.  
 JAMES J. FOLEY }  
 F. A. MORRILL } for Norwood Board of Trade.  
 PETER FISHER }  
 JAMES M. FOLAN }  
 JAMES J. SHEEHAN for town of Peabody.  
 EVERETT C. BUMPUS for city of Quincy.  
 JOHN R. RICHARDS for Quincy Board of Trade.  
 JOHN A. L. ROSS for Improvement Associations in Quincy.

JAMES H. DUNPHY for town of Randolph.

THOMAS J. KENNEY for certain citizens of Randolph.

ALBERT R. WHITE, 2nd, for town of Raynham.

J. W. MORTON for town of Reading.

ANDREW A. CASASSA for city of Revere.

WILLIAM J. COUGHLIN }  
DAVID H. COADY } for town of Rockland.

J. M. MARSHALL for town of Rockport.

JOSEPH N. DUMMER for town of Rowley.

WILLIAM D. CHAPPLE for city of Salem.

W. GEORGE GREENLAY for Saugus Board of Trade and selectmen of Saugus.

F. L. HANSON }  
FRANKLIN S. SIMONDS }  
FRANK S. MULVANEY } for town of Somerset.  
JAMES T. BAGSHAW }

H. H. RICHARDSON }  
L. B. COLLAHAN } for Stoneham Citizens' Committee.

GEORGE W. PRATT }  
JAMES A. RILEY }  
CORNELIUS HEALEY, Jr. } for town of Stoughton and Stoughton  
TIMOTHY F. DALY } Board of Trade.

JAMES W. SANTRY for town of Swampscott.

JOHN B. TRACY for city of Taunton.

CHARLES H. MCINTIRE for town of Tyngsborough.

E. S. CLEMONS }  
E. K. BOWSER } for town of Wakefield.

HAROLD S. LYON for town of West Bridgewater.

JOHN F. BOWEN }  
DANIEL COONEY } for Citizens' Committee of West Newbury.

ALBERT P. WORTHEN }  
RALPH P. BURRILL } for town of Weymouth.

WALTER L. BATES for Weymouth Board of Trade.

E. GERRY BROWN for town of Whitman.

CHARLES F. DUTCH for town of Winchester.

W. D. GRAY for city of Woburn.

W. C. BARROWS for town of Wilmington.

WHITFIELD L. TUCK for certain Granges.

FRANK W. WEBSTER for United Improvement Association of Boston.

CONRAD W. CROOKER for Municipal Officers' Association.

## REPORT.

On September 7, 1915, the Bay State Street Railway Company notified the Commission of a proposed increase in passenger fares and modifications of fare limits and transfer privileges, to take effect November 1, 1915. Briefly, the changes proposed are: —

- (1) A general increase in the unit cash fare upon all lines from five cents to six cents.
- (2) An increase in certain local fares from five cents to eight cents.
- (3) The sale of nine tickets for fifty cents, each ticket good for a single cash fare in certain city districts.
- (4) The modification of certain existing and the introduction of certain new fare zones.
- (5) The modification of certain transfer privileges.
- (6) The withdrawal of all existing reduced fare tickets, other than half-fare tickets for school children.

The company estimates, on the basis of the figures for the year ended June 30, 1914, that these changes would yield an increase in passenger revenue of nearly \$1,250,000, or about  $14\frac{1}{2}$  per cent. This estimate assumes traffic losses on the various lines, due to the increased fares, ranging from 5 per cent to 20 per cent and a 60 per cent use of tickets in the city districts.

On October 21, 1915, the Commission suspended the operation of the new schedule until May 1, 1916, and later the time of suspension was extended, under chapter 24 of the General Acts of 1916, to September 1, 1916. Public hearings began on November 8, 1915, and were closed on July 25, 1916, occupying sixty days in all. The Bay State Company operates in eighty-five cities and towns of Massachusetts and nearly all of them were represented at the hearings by counsel, as were various chambers of commerce, labor unions and other organizations, and certain individuals. Protests in writing were received in great volume from all over the territory affected. Throughout, we take pleasure in saying, the company and its counsel facilitated in every way the investigation of its affairs. The Commission also wishes to express its appreciation of the assistance rendered by counsel for the remonstrants, especially by Arthur G. Wadleigh, city solicitor of Lynn, and Albert P. Worthen, town counsel of Weymouth, upon whom, by common consent, fell the chief burden of the opposition. No rate case ever tried in the Commonwealth has directly concerned so many of its people or has possessed so many complexities.



## THE TERRITORY SERVED.

The Bay State Street Railway Company owns and operates one of the largest street railway systems, in point of mileage, in the country. On June 30, 1914, it operated, in all, 951 miles of single track. It owned 897 miles, located in Massachusetts, all of which it operated except 27 miles in the southern part of Boston, which are leased to the Boston Elevated Railway Company. It held under lease or contract 69 miles, located partly in Massachusetts but chiefly in New Hampshire and Rhode Island. It had operating rights over 12 miles, located largely in Boston and vicinity.

The system spreads in a rather complex network over eastern Massachusetts and consists of two disconnected portions, one north of Boston and the other south, separated by the system of the Boston Elevated Railway Company. On the north, the lines reach to Nashua, New Hampshire, and on the south, to Newport, Rhode Island. While the territory served is sparsely settled in many parts, there are few sections of the country of equal size which are more thickly populated. The cities and towns included within this territory, with their population in 1915, area, and population per square mile, are given in Appendix A. The Bay State operates in Boston only to a very limited extent and barely touches New Bedford. Excluding these cities, the total population of the territory is 1,335,787, the total area is 1,528.6 square miles and the average population per square mile is 873.8. It will be seen that the system furnishes a composite of city and country service.

## ORIGIN OF THE COMPANY.

The Bay State Street Railway Company is the successor of sixty-three street railway companies (see Appendix B) which, by gradual steps, have been consolidated into this single corporation. Some of these companies originally operated horse car lines, but many more came into existence during the period from 1890 to 1900 when electric railway promotion in Massachusetts was at its height. In 1899, after the number had been reduced by consolidations, two banking firms in Boston devised the plan of bringing these companies under a single management and control. They secured controlling interests in the stocks of twenty-eight separate properties, created a holding company in the form of an unincorporated association, called the Massachu-

setts Electric Companies, and organized a syndicate of bankers to underwrite its shares. The street railway stocks were then turned over to this holding company in return for its shares, preferred and common, and these shares were allotted, pro rata, to the underwriters in exchange for cash. The whole transaction was concluded by June, 1899. Later, the Massachusetts Electric Companies acquired the stocks of ten other companies.

After the advent of the holding company, the street railway companies were soon consolidated on a share for share basis into two companies, the Boston and Northern Street Railway Company, north of Boston, and the Old Colony Street Railway Company, south of Boston. Later, under a special act (St. 1911, c. 323), the Old Colony was in July, 1911, consolidated with the Boston and Northern and the name of the latter was changed to the Bay State Street Railway Company. All the common stock of the Bay State company, except shares necessary to qualify directors, is held by the Massachusetts Electric Companies. The relatively small amount of preferred stock is held by the public.

#### GENERAL PRINCIPLES.

This case arises under section 21 of the Public Service Commission act (St. 1913, c. 784, as amended by St. 1916, c. 24), which reads in part as follows: —

Whenever the commission receives notice of any change or changes proposed to be made in any schedule filed under the provisions of this act, it shall have power, either upon complaint or upon its own motion, and after notice, to hold a public hearing and make investigation as to the propriety of such proposed change or changes. Pending any such investigation and the decision thereon, the commission shall have power, by any order served upon the common carrier affected, to suspend the taking effect of such change or changes, but not for a longer period than ten months beyond the time when such change or changes would otherwise take effect. After such hearing and investigation, the commission may make such order in reference to any new rate, joint rate, fare, telephone rental, toll, classification, charge, rule, regulation or form of contract or agreement proposed, as would be proper in a proceeding initiated after the same has taken effect. At any such hearing involving any proposed increase in any rate, joint rate, fare, telephone rental, toll or charge, the burden of proof to show that such increase is necessary in order to obtain a reasonable compensation for the service rendered shall be upon the common carrier.

The principles which should guide the Commission in deciding whether or not the proposed increase in fares ought to be permitted have been discussed in comparatively recent opinions, notably in the so-called Middlesex and Boston case (2nd Rep. P. S. C., p. 99 *et seq.*). In view of the magnitude and importance of the present case, however, the Commission has thought it desirable, not only to deal with such new questions as have been raised, but also to review again the principles to which it has heretofore given its approval.

Rates charged by public service corporations have been frequently before the courts and certain of their decisions have been cited in the present proceedings. In general, these cases have arisen under the Fifth or the Fourteenth Amendment to the United States Constitution and the question has been whether or not public authorities, under the guise of regulating rates, have confiscated property or destroyed property rights. The question before the Commission is a somewhat different question. The two have much in common, but the duty of the Commission under the statutes, speaking strictly, is not merely the duty of avoiding confiscation but the duty of doing justice. The standard which our law prescribes is that rates shall be "just and reasonable" (St. 1913, c. 784, § 17).

A public service corporation is, in a sense, an agent of the State, for it is performing a public function which the State might well perform itself. The duty of a supervising commission, broadly speaking, is to see that the corporation furnishes reasonable service and that it does not exact an unreasonable compensation. There are no mathematical formulas for determining what is reasonable; it is, in the main, a practical rather than a theoretical question. So long as the field is left to private enterprise, rates should be high enough to attract, under normal conditions, the capital necessary to assure the service for which there is public need. In other words, the State is a bargainer. The public should pay what is reasonably necessary to have the work done well and it ought not to pay any more.

If conditions were adjusted on this basis, the owners of public service properties could hardly claim that they were being unfairly treated and still less could they be heard to say that their property rights were being confiscated or destroyed. The rule, however, involves important assumptions. It assumes a public need for the service furnished. It also assumes good faith and reasonably sound discretion and judgment on the part of the

private owners. What the public is paying for is service. It cannot be expected to pay for delinquencies and blunders.

In the court decisions, the general rule laid down is that a public service corporation is entitled to a reasonable return upon the "fair value" of its property. This rule, however, leaves much to interpretation. As "value" has been used by the courts it carries a meaning quite different from that which attaches to the word in common parlance. To quote from the report made in 1913 by the Committee on Valuation of the National Association of Railway Commissioners (Report, 25th Annual Convention, p. 264):—

The situation would be greatly simplified and many of the problems which have aroused such discussion could be dismissed if the courts had adopted, or were to substitute, the word "amount" for "value". It is true that "amount" has not a definite or positive meaning, but the word "value" has been robbed of its ordinary meaning, and has been used in so many different ways that it is not of much assistance in solving the problem of the reasonableness of a given rate. The Supreme Court of the United States has repeatedly announced that no one factor is determinative; but that various factors must be considered. In certain cases, counsel have argued that cost-to-reproduce-new should be the only principle to be followed and that the rate should allow a fair return upon the reproduction cost of all property. Likewise, original cost has been urged as the only fair standard. Both standards have been recognized as deserving consideration, but each has been repudiated by the highest courts as the sole standard. If, therefore, each case must be considered upon its merits, and if a number of factors are to be considered and a decision based upon all, it follows that a general term, such as "amount", would be much more satisfactory and as full of meaning as the word "value", the ordinary meaning of which is not accepted, and as to which an explanation and apology must be made whenever it is used.

It is hardly too much to say, indeed, as the New York Public Service Commission has said, that the determination of "fair value", as the courts use the expression, is "a determination of what, under all the facts and circumstances of the case, is a just and equitable amount upon which the return allowed to the corporation is to be computed" (3 P. S. C. of N. Y. 2d D. 533, p. 644).

In the Middlesex and Boston case the following rule was laid down by the Commission (2d Rep. P. S. C., pp. 111, 112):—

Accordingly, we rule that under Massachusetts law capital honestly and prudently invested must, under normal conditions, be taken as the controlling factor in fixing the basis for computing fair and reasonable



rates; that if there is mismanagement causing loss, such loss must be charged against the stockholders legally responsible for the mismanagement; that reproduction cost either with or without depreciation, while it may be considered, is not, under our law, to be taken as the determining basis for reckoning rates.

Upon consideration, we see no reason to alter this statement. The essential thing is to attract private capital, and what the persons who furnish capital are primarily interested in is the return upon the amount which they invest. In an address delivered at the "Conference on Valuation" in Philadelphia, November, 1915, the late John M. Eshleman, first president of the California State Railroad Commission, said: —

If we had this problem at the beginning and were not attacking it in the middle, we would have no difficulty in agreeing with the holder of capital upon this subject, for he would quite readily agree to take the cost of doing the business plus an earning upon the money actually invested comparable to the earning offered in other available investments. Therefore, the cost of doing the business plus a return upon the capital necessarily invested in the business, which return shall be as great as is offered in other businesses of similar hazard, is all that ought to be accorded for the future and it is all that will be accorded if the public has any business sense. And if more is asked by the private owner, then he may expect no sympathy when he finds the public his competitor and his earning power impaired.

This is not only sound policy for the future but, so far as this Commonwealth is concerned, it is, we believe, the understanding which has always prevailed. To quote again from the *Middlesex and Boston* case (2d Rep. P. S. C., p. 111): —

All through the statute law and the earlier decisions of this board, runs the theory that the capitalization of a public utility company in this Commonwealth is to represent only honest investments; and that such rates are to be allowed as will yield a fair return upon such investments, including, particularly in the earlier legislation, fair or even generous payments for the risks that the investors ran.

Broadly speaking, rates which will, under reasonably good management, yield a return upon honest and prudent investment sufficient to attract the additional capital needed are "just and reasonable rates" in Massachusetts.



## BURDEN OF PROOF.

The section of the Public Service Commission act above quoted definitely places upon the company the burden of proof to show that the increase which it proposes is necessary "in order to obtain a reasonable compensation for the service rendered." Counsel for the remonstrants have requested the following rulings (Brief, pp. 5, 6): —

1. The Bay State Street Railway Company must prove affirmatively that the capital on which it seeks a revenue represents an honest and prudent investment.

2. The Bay State Street Railway Company must prove affirmatively that it has operated its system and plant with a fair measure of efficiency and in a manner calculated to produce good average results, both to itself and in service to the public.

3. The Bay State Street Railway Company must prove affirmatively its contention that seven per cent is a fair return on its investment.

4. The Bay State Street Railway Company must prove affirmatively its contention that increased fares as proposed will result in an increased revenue.

5. There is no presumption of operating efficiency on the part of the Bay State Street Railway Company.

6. There is no presumption in this case of honesty or prudence on the part of the Bay State Street Railway in investing the capital on which it seeks a return.

7. The Company, in order to be entitled to any return on the amount of investment claimed, must prove affirmatively its contention that an investment to the said amount has been made.

The meaning of the similar language relative to burden of proof in the Interstate Commerce Act has been defined by the Interstate Commerce Commission as follows (XX I. C. C. 315): —

The assumption of the law is that the railroad which increases its rates takes such action knowing that the law casts upon it — if challenge is made either by this Commission or otherwise — the burden of justifying its action. Theirs, in the language of the learned Dean Wigmore, is "the risk of nonpersuasion." *Wigmore on Evidence*, sec. 2485. The railroad must assume to prove to this Commission that the new and the increased rates are within the words of description and limitation used in the act; that is, that they are just and reasonable. And to say that they must prove this is to say that they must satisfy our minds of this fact.

This Commission is not a court of law nor a tribunal which should merely determine as between two sides the preponderance of evidence and base its decision upon technical rules of evi-

dence. No default of the remonstrants, for instance, would justify the Commission in neglecting to make its own investigation of the facts. With respect to the burden of proof, it is sufficient to say that in a case like this the company must satisfy the Commission that additional net income is needed in order that a fair return may be earned upon capital honestly and prudently invested; it must satisfy the Commission that the needed income cannot be secured through more efficient management and operation; and it must further satisfy the Commission that there is at least a reasonable prospect that the change in fares desired will result in an increase in revenue and in no larger increase than is reasonably needed. No presumption exists with respect to any question of fact.

#### FRANCHISE RESTRICTIONS.

In many instances the locations in public ways which the Bay State Company now holds were originally granted to predecessor companies upon the express condition that the fare charged for any ride within certain limits should not exceed five cents. In the Middlesex and Boston case the Commission ruled that such conditions or limitations "are not valid and controlling as against the rate-making power now vested in this commission by the public service act" (2d Rep. P. S. C., p. 105). This has recently been confirmed by the Supreme Court in *Board of Survey of Arlington v. Bay State Street Railway Company* (decided June 21, 1916). In speaking of the Public Service Commission act, the court said:—

The plain purpose of the legislature, in recognition of the fact that many street railways operate miles of tracks extending through numerous cities and towns, was to prescribe for the regulation of fares throughout the Commonwealth by a single public board, which may be expected to act with a broad and unbiased view for the promotion of the common good of all conflicting interests involved and not under the influence of purely local considerations. The statute is a legislative determination that it is unwise and inexpedient longer to permit the full development of interurban transportation by street railways to be hampered by conditions as to fares contained in locations granted by the public officers of different municipalities.

The legal right of the Commission to permit an increase of fares, notwithstanding the terms of local franchise grants, is clearly established.

In at least two instances, the fare which the Bay State company may charge appears to be limited, not by local agreement, but by direct legislative enactment. As successor of the Lowell and Suburban Street Railway Company it is prohibited, by chapter 163 of the Acts of 1890, from charging more than five cents for any ride within the limits of the city of Lowell. Certain fare limitations in the city of Fall River were also imposed by chapter 552 of the Acts of 1911. The Commission is of the opinion that, as the acts establishing these limitations were not expressly excepted in the Public Service Commission act, they were repealed by the provisions of section 29, which reads, in part, as follows: —

Except as above provided, all acts and parts of acts inconsistent with any provision of this act, and all acts and parts of acts which would in any way limit or prevent the exercise to the fullest extent of any of the jurisdiction, powers, authority or discretion delegated herein to the commission, are hereby repealed.

“It is impossible to give the act a narrow or constricted construction as to the subject of fares” (See *Board of Survey of Arlington v. Bay State Street Railway Company, supra*).

#### THE COMPANY'S CLAIM.

The Bay State Street Railway Company claims that it is justly entitled to increase its fares, because the revenues which it receives from operation within Massachusetts are insufficient to pay operating expenses and taxes, provide for depreciation and yield a reasonable return upon the investment. The following figures (revised from Exhibit 30) are the basis for this claim: —

Investment value total Massachusetts property, . . .	\$41,563,308
Working capital assignable to Massachusetts property, . .	1,424,097
	<hr/>
Total, . . . . .	\$42,987,405

#### *Revenue Requirements for Massachusetts Property.*

Variable expenses, year ending June 30, 1914:	
Maintenance of way and structures, . . .	\$783,906
Maintenance of equipment, . . . . .	768,887
Traffic, . . . . .	58,353
Conducting transportation, . . . . .	3,381,835
General and miscellaneous, . . . . .	1,000,524
	<hr/>
	\$5,993,505

Taxes, . . . . .	\$604,957
Amount needed for depreciation in addition to present maintenance charges, . . . . .	1,063,145
Interest on \$42,987,405 at 7 per cent, . . . . .	3,009,118
Total revenue needed, . . . . .	<u>\$10,670,725</u>
Total revenue, year ending June 30, 1914, . . . . .	9,092,077
Additional revenue needed, . . . . .	<u>\$1,578,648</u>

The investment, working capital and depreciation figures used in this table are estimates. The actual amounts for the year ended June 30, 1914, are used, with certain minor adjustments, in the case of variable expenses, taxes and revenue.

### THE INVESTMENT.

In opening the case counsel for the company made the following statement (Record, p. 41): —

When it became evident to the management that a revision of fares could no longer be postponed, steps were at once taken to secure a complete and unprejudiced study and inventory of the railway property as the only sure method for determining the true basis for fares. An expert engineer, at that time chief engineer of the Illinois Public Service Commission, was engaged to make it.

What the company sought to do was to estimate the original cost of its existing property in much the same way in which reproduction cost is so often estimated. The engineers employed for this purpose, Sloan, Huddle, Feustel & Freeman, of Madison, Wisconsin, made an inventory, as of November 1, 1914, endeavoring at the same time to fix the approximate date when each item came into existence. Mr. Robert M. Feustel was in charge of the work and was the company's principal witness. The total original cost new was estimated by applying to the various items unit prices for labor and materials prevailing, in the opinion of the engineers, at the respective dates and was found to be \$41,563,308, or about \$46,000 per mile of single track. This is the "investment value" used in the table given above. Adding the allowance for "working capital," the total is \$42,987,405.

The inventory included the property to which the four small



leased companies in Massachusetts have title. The total outstanding capitalization of the Bay State company and of these companies in 1914 was as follows:—

Common stock, . . . . .	\$21,035,900
Preferred stock, . . . . .	2,748,600
Funded debt, . . . . .	23,747,000
Unfunded debt, . . . . .	1,900,000
<hr/>	
<i>Total</i> , . . . . .	\$49,431,500
Engineers' estimate, . . . . .	42,987,405
<hr/>	
<i>Difference</i> , . . . . .	\$6,444,095

It should be noted that the capitalization in part represented discount on bonds, amounting to \$1,251,010, and replacements in suspense, amounting to about \$750,000. On the other hand, the records show that premiums amounting to \$1,414,680 were paid in, at various times, on new issues of stock.

The report of the company's engineers was submitted in 10 large volumes giving evidence of many months of work performed with great care and thoroughness. Their method of determining original cost, however, creates an impression of accuracy which is not wholly warranted. It is impossible to see all the physical property. Ties, ballast, building foundations, and other items are, in whole or in part, buried in the ground. Nor can the amount of street grading and similar work when the track was originally laid be determined with accuracy by an inspection of the property at the present time. Information in regard to these matters the engineers were forced to obtain from the imperfect records of the company, supplemented by the statements of its officers. The same difficulty was experienced in determining property ages.

Even less accuracy was possible in the case of unit prices. The records of the company give detailed information in regard to the cost of recent work, but this is not true of the earlier years. Prices of materials can often be ascertained from outside sources, but the fair labor cost, in the period prior to, say, 1901, of excavation, track-laying and similar work is very difficult to obtain. The difficulty is enhanced by the fact that the promoters of many of the original roads were at the same time their constructors, doing the work under contracts which were largely a matter of form.

Without disparaging the work of the engineers, it is neverthe-



less true that an investigation such as they pursued is not an exact science and inevitably the element of personal judgment plays a large part. The possibility of precise information is limited and the opportunity for error large. The work calls not infrequently for the drawing of general conclusions from evidence which is fragmentary and inadequate.

### *The Inventory.*

To check the entire inventory was impracticable. As a more feasible alternative the Commission selected certain sections of the property as typical and made an independent inventory of those sections. The lines within the limits of Brockton, certain lines in the vicinity of Lynn and one of the through lines from Medford to Lowell were surveyed by the engineers of the Commission and the property and its characteristics noted in detail. A similar investigation was undertaken to determine to what extent the street surfacing or paving between the rails and tracks throughout the entire system had been installed by or at the expense of the company. No serious discrepancies developed. The Commission has no doubt that the company's engineers measured the track accurately, counted the cars correctly, surveyed the parcels of land with precision and in general performed the inventory work, subject to the limitations above mentioned, with due care.

### *Unit Prices.*

Much difficulty was experienced in checking the unit prices which were used. In the first place, these prices are largely averages. The method employed is indicated by the following statement from the company's brief (pp 11, 12): —

The building of the Bay State Street Railway property has been going on for a period of about sixty years. Steel, copper, and wood are the three principal materials used, and the base prices for these articles have varied greatly in the last twenty years. Steel rails have fluctuated in price from \$17.62 per ton to \$34.52 per ton during the past twenty-five years, and the cost of copper has shown a similar variation. It would have been manifestly incorrect to have used either the highest or lowest of these costs as representing the true investment cost of these materials to the Company. The method used was to find the weighted cost of all material purchased from the actual records of purchases during the later years and from the date of installation during the earlier periods where cost records were not available. This method of using a weighted average

cost might result in obtaining a slightly erroneous figure for the investment in some particular line as it was originally made but would give a fair result for the property as a whole.

This was the method employed not only in the case of prices of materials but in the case of labor prices as well. Sometimes two or more units were used, — for example, an average prior to 1900, an average from 1900 to 1909 and an average from 1909 to 1914, — but at times the average covered the entire period of construction. Thus, a portion of the grading may have been done in 1894 and another portion in 1914, but the same unit price is used in both cases. It is not the price which prevailed either in 1894 or in 1914, but the estimated weighted average price for such work during the life of the company. If an accurate record be found of grading costs in 1894, it is of little value as a check, for the average can only be tested through a knowledge of costs and of the amount of work done in each and every year.

In the second place, both quantities and prices were computed according to the classification of construction accounts prescribed for street railways by the Interstate Commerce Commission. Until recently, no railway in Massachusetts has followed such a system of accounting. To illustrate, the labor involved in installing track is listed under three heads, "Grading", "Paving", "Track and Roadway Labor". But when most of the Bay State lines were constructed, no such division was customary. Where unit prices were used at all, it was the practice to contract for all such labor upon a simple cost per foot basis.

The engineers of the Commission spent weeks in investigating these unit prices. The difficulties which they experienced are indicated in the following extracts from the report of the chief engineer, Mr. Henry W. Hayes (Exhibit 65, pp. 5, 6 and 13): —

The principal construction work covered by this account ["Grading"] is excavating a trench, usually in highways, varying in depth from a foot to eighteen inches or more and from eight to nine feet wide per track. This shallow cutting is relatively more expensive than the ordinary excavation, because its shallowness makes the pick and shovel less effective than in a deeper cut and because the surface may be of macadam, granite block or other pavement. It is also to be considered that in cities the surplus excavation has to be removed and that places for dumping the same often require a considerable length of haul, which increases the unit price over that of similar work in the country, where the surplus may

often be dumped alongside the highway near the work. On the country lines the street surface is usually less difficult than that in the cities. Because of these varying conditions and of the further fact that there is no available data in the accounts of the street railway companies or elsewhere as to unit costs of excavation of this character, since such work in the past was done usually by contract, or by company labor in connection with other construction work, and without classification of such labor, it is difficult to determine or to criticise unit prices under this account. The prices used by Mr. Feustel are classified as follows:—

Earth in track trench, city, . . . . .	\$0 60 per cubic yard.
Earth on country lines, . . . . .	30 per cubic yard.
Rock, . . . . .	1 82 per cubic yard.
Loose rock, . . . . .	1 00 per cubic yard.

These are average prices, both as to the various kinds of earth and rock and as to the year done. It seems impracticable to use other than average prices as the kind of earth and the kind or condition of street surface or the length of haul twenty or thirty years ago cannot now be accurately determined, nor can accurate prices for each year be determined, for no strictly comparable costs are available.

This account ["Track and Roadway Labor"] covers the cost of labor in distributing ties, rails, ballast, frogs, switches, special work, etc., and laying and surfacing track. For the reason that street railway companies in Massachusetts did not keep labor costs under any uniform classification prior to the year ending June 30, 1915, when they were obliged to adopt the Interstate Commerce Commission classification, it is practically impossible to obtain any general data for comparison with the unit prices in this account.

It was, however, possible to secure more satisfactory information as to the prices of materials. The engineers of the Commission examined, not only the books and vouchers of the Bay State system, but also the records of the Boston Elevated, Middlesex and Boston, Worcester Consolidated and Springfield companies. They referred to the records of the Massachusetts Highway Commission, noted various valuations of street railway properties in other parts of the country, consulted builders and dealers in supplies, conferred with the engineering departments of the Railroad Commission of Wisconsin and the Public Service Commissions of New York and New Hampshire, and analyzed the methods used by the company's engineers in deriving averages and reaching general conclusions.

The results of this investigation (see Exhibits 65, 79 and 80)

tended, upon the whole, to confirm the unit prices used. On the other hand, they showed the somewhat speculative character of many of the prices and the meagerness of the data upon which it was at times necessary to base conclusions. Revising the units in accordance with his report, Mr. Hayes has estimated a net reduction of about \$600,000 in the total estimate of original cost.

The evidence introduced by the remonstrants upon this subject was limited. It is, we think, somewhat significant that no evidence was offered by city or town engineers as to paving or similar unit prices within their knowledge. Mr. Alton D. Adams, an expert employed by certain of the remonstrants, spent much time in the examination of company contracts and vouchers and submitted costs of car bodies and of track labor, obtained from these records, which were materially lower than the corresponding figures in the engineers' estimate. The discrepancy was explained in the case of the cars by evidence that the latter figures included the cost of appurtenances and the labor of mounting the car body upon the trucks; and this was verified through the books by the chief accountant of the Commission, Mr. Lester (see Exhibit 80). In the case of the track labor costs, however, the explanation was less convincing. It was shown that reconstruction and improvement have taken place in some cases since the date of the original work and that the contracts relied upon by Mr. Adams probably did not include all the work, some of it being done by the company. It is also true that the engineers' estimate was based, in part, upon average prices. But taking all this into consideration the discrepancy is so large that there is still room for explanation.

Mr. Adams' track labor figures were supplemented by evidence submitted by Mr. E. Worthington, a consulting engineer of Dedham. In the period from 1894 to 1900 Mr. Worthington was in charge of the construction of the Norfolk Suburban, Norfolk Central and West Roxbury and Roslindale properties, which later became a part of the Bay State system. These lines were cheaply built, largely in a manner described by Mr. Worthington as follows:—

The method of construction used in the period above named for the second and third classes of work was to loosen the material of the roadway by ploughing the location and then throwing out the material with shovels or a horse scoop. The ties and rails were then laid and brought to grade and line. The material of excavation was then returned to trench and graded over the ties.



Many of the Bay State lines were, it seems, of this type. Mr. George W. Bishop, chief of the inspection department of the Commission stated in his report (Exhibit 64, p. 4) that altogether too much of this street railway system had been "constructed with light weight rails, small cross ties and poor ballast and apparently without due regard for the best grades, alignment and drainage." Using the original contracts and specifications as a basis, Mr. Worthington submitted evidence showing that the actual cost of laying the track which he constructed was materially lower than the engineers' estimate. The comparison is impaired by the fact that some of the lines have been reconstructed and improved, but others have been changed very little. In these latter cases, as well as in the former, a discrepancy exists between the actual and the estimated weighted cost figures which has not wholly been explained.

Besides estimating the original cost of the property, the engineers also estimated the cost of reproduction new, using for this purpose unit prices averaged for the five years ending with 1914. This latter estimate has, we think, a bearing in the consideration of the unit prices used in determining original cost. In view of the statements, to which the company has given much prominence, as to the burden imposed by enhanced cost of labor and materials in recent years, it might be expected that reproduction cost would greatly exceed original cost. This was, indeed, the view of the president of the company (Record, p. 4870). Nevertheless, eliminating overhead charges and including land, which has increased nearly 50 per cent in value, the former, as estimated by the engineers, is only 5.32 per cent larger than the latter (Exhibit 75). According to their figures, the reproduction cost of distribution system, freight and express cars, electrical equipment of cars, transmission system and power plant equipment is less than original cost.

Taken as a whole, the evidence in regard to unit prices is not wholly satisfying. Too much of it falls below the level of positive demonstration and is based on little more than what has been termed, in these proceedings, a "cultivated" or "educated" guess. No criticism is intended of the work which the engineers have done, for it is doubtful whether more satisfactory evidence is obtainable. Nor does the characterization apply to all the evidence which has been submitted. So far as it relates to prices for labor and materials within the past ten years, the records are fairly complete and the company has, we feel, in general



sustained the burden of proof; and, on the facts before us, the same must be said of all the prices of land, cars, car equipment and power station equipment. The data in regard to buildings and paving, also, are detailed and have not been challenged by the remonstrants, who ought to have knowledge of such costs. The evidence which is particularly dissatisfying relates to the cost of installing track and overhead construction prior to, say, 1901. This is true more particularly of labor. The information is very meager. For instance, even in the case of materials no evidence in regard to the cost of trolley wire prior to 1904 has been furnished.

While a finding is difficult, the best judgment of the Commission, after careful consideration of all the evidence available, is that the engineers did not attach sufficient weight to the low labor and material costs prevailing in the nineties, nor to the imperfect and cheap character of railway construction during that period, and that the company has failed to sustain the burden of proof with respect to these costs, as well as certain costs of lesser consequence in later years. The reduction of \$600,000 estimated by Mr. Hayes is, we think, conservative.

#### *Overhead Charges.*

Of the total "investment value" of \$41,563,308 estimated by the engineers, \$4,721,674 covers the so-called "overhead charges" incurred in the course of construction. They average a little less than 13 per cent of the direct property cost and are divided, roughly, as follows (Record, p. 1798): —

	Per Cent.
Engineering and superintendence, . . . . .	3.68
Interest during construction, . . . . .	2.23
Taxes during construction, . . . . .	0.12
Insurance during construction, . . . . .	0.48
Organization and legal expenses, . . . . .	3.00
Contingencies, . . . . .	3.23
<hr/>	
Total, . . . . .	12.74

The assignment of these charges to the different classes of property is given in full in Appendix C. The percentages are based, not upon actual records, but upon judgment. To quote from the company's brief (pp. 13, 14): —

A considerable part of these costs were incurred during the construction of the constituent companies and were outstanding capital obligations at the time of the consolidations. This, of course, has made it impossible for the engineers to present the actual records and it has been necessary, as in practically all rate cases, for the Company to present estimates based on its experience and that of its engineers.

The only evidence as to the actual charges of this nature was developed by the remonstrants and by the Commission. At the request of the former, the company ascertained from its records the overhead charges in connection with the construction of the large Quincy power station. This plant was built about ten years ago and must have entailed relatively large engineering and other overhead expenses. The following table shows the actual as compared with the estimated charges (Exhibit 97): —

	Engineers' Estimate.	Book Records.	Difference.
Engineering, . . . . .	\$53,797	\$47,459	\$6,338
Interest, . . . . .	22,864	21,681	1,183
Taxes, . . . . .	5,380	-	5,380
Insurance, . . . . .	5,380	683	4,692
Contingencies, . . . . .	32,278	75	32,203
Organization and legal, . . . . .	32,278	8,785	23,493
Total, . . . . .	\$151,977	\$78,688	\$73,289

As a check upon the overhead expense in recent construction, the accountants of the Commission drew off, from the detailed schedule of expenditures for additions and betterments filed with the company's petition of April 28, 1915, for approval of an issue of capital stock, a record of all the overhead charges noted therein (Exhibit 91). They were confined entirely to "engineering and superintendence." The percentages for the various classes of property are given in the following table, the similar percentages used by the engineers being shown in the second column: —

	Actual Per Cent.	Engineers' Per Cent.
Telephone and signals, . . . . .	3.38	3.5
Power stations and machinery, . . . . .	2.45	5.0
Rolling stock, . . . . .	1.03	2.5
Bridges, . . . . .	1.41	4.5
Underground conduits and feed wire, . . . . .	7.11	10.0
Construction, track and line, . . . . .	4.14	(4.5 track 3.5 line)

If any other overhead charges were incurred in connection with this work they were not noted in the schedule.

To test the overhead expense on earlier construction, the accountants selected at random from the files of the Commission 30 appraisals or estimates submitted in capitalization cases, in the period from 1890 to 1900, by various companies which later became a part of the Bay State system. In these appraisals and estimates no overhead charges are noted, save engineering and superintendence in the case of "roadbed and track" and the "overhead system." They amounted, upon the average, to 2.19 per cent of the total cost of these property items.

The subject is further illuminated by a brief filed with the Board of Railroad Commissioners in 1900 (Docket No. 2584) by Mr. Bentley W. Warren, former counsel for the Bay State company, in connection with the petition of the Lynn and Boston company for approval of an issue of stock. An appraisal had indicated a serious impairment of the company's assets, but no allowance had apparently been made for overhead charges. Mr. Warren's brief, as counsel for the Lynn and Boston, was directed to this deficiency and describes at length the overhead expense which he thought should be included. His conclusion was that "at least five per cent and probably nearer 10 per cent" should be added to cover engineering, legal expenses and interest during construction, and no suggestion was made that any other overhead charges should be allowed.

The Commission realizes that much overhead expense in the past, and even in more recent years, has not been segregated in the records; but it believes that the company has failed to sustain the burden of proof in this matter and that its estimate (which is little more than theoretical) considerably exceeds the reality. The fact that other commissions in other cases have allowed a larger percentage has little significance in this case.

Most of these other cases have involved dissimilar properties and the overhead charges were figured upon the cost of reproduction. The present Bay State system has grown slowly and a larger portion of its cost represents additions and improvements to already existing property, a fact which has tended to lessen interest during construction. Much of the engineering and superintendence, especially in the past, has probably been supplied by officers whose salaries were charged to operation; and this is no doubt true of other overhead expense. Nor has the construction of railway lines along public ways required a large amount or a high grade of engineering. In the early days, too, engineering on rolling stock and electrical equipment was largely supplied by the manufacturers. The item of contingencies, we think, has been considerably overestimated. It is based on the theory that various items of property have probably been overlooked; but the inventory was made in great detail and, as already indicated, covers much property which cannot be seen. Assumptions in regard to the depth of excavations, the character of ballast and ties, the amount of work on the streets, etc., are likely in some cases to favor rather than to prejudice the company. This is true in even greater degree of the assumptions in regard to unit prices.

After full consideration of all the evidence, the Commission is of the opinion that in this case 8 per cent is a liberal allowance for overhead charges. Assuming that the engineers, as above indicated, overestimated the direct cost of the property by \$600,000, the total estimate for overhead expense on this 8 per cent basis is \$2,899,330, instead of \$4,721,674.

### *Working Capital.*

The engineers allowed \$1,424,097 for working capital. As defined by them, this includes "cash on hand and money invested in stores and supplies," and the figure used was based on the average of these items during the past five years.

The remonstrants strongly urged that no such amount is needed or ought to be allowed as a part of the investment. To quote their expert, Mr. Adams (Record, p. 4513): —

As I understand it, working capital is money that the stockholders or creditors of a concern must put into it and keep in the business in order to do the business, and I don't see that a concern like the street railway business that collects its income with much greater frequency than it pays its bills, collecting it daily and hourly, requires to have a substantial



sum of working capital, and to my mind to allow a substantial amount of working capital in such a concern is merely to allow the Company a return on a part of its operating expenses. The Company gets from the public an income. A part of that income is for the express purpose of meeting the operating expenses and those operating expenses and the meeting of them is what working capital would be used for if it were used at all. And yet we find that part of the income which the public supplies is on hand ready to meet these operating expenses because it is paid to the company in the main before the expenses are incurred.

On the other hand, the company contends that it is necessary for a street railway company to have continually on hand "materials and supplies and other working assets" and that, while less cash working capital is required than in the case of a gas or electric light company, it is not true that it is possible to depend entirely upon annual receipts. To quote from its brief (pp. 41, 42): —

It should be borne in mind that during certain times the balances must necessarily run up anticipating interest payment and the Company must be prepared to pay its interest on the interest day without embarrassment. Further, during certain seasons of the year, large expenditures are being incurred for construction and reconstruction work. The amount carried for construction purposes should be taken care of by an allowance for interest during construction, but the Company should have on hand sufficient capital to finance temporarily the non-betterment part of its work. There are also many times when exceptional expenditures must be made. Take for instance, the expenditures incident to this present case.

The question is not entirely open, so far as this Commission is concerned, for in 1909 its predecessor, the Board of Railroad Commissioners, acting under chapter 485 of the Acts of 1909, allowed the Boston and Northern and Old Colony companies to issue, all told, 9,925 shares of preferred stock at 115 to supply \$1,141,375 for working capital. The Commission, however, sees no reason for allowing a larger amount now than was then approved and the estimate should, therefore, be reduced from \$1,424,097 to \$1,141,375.

#### *The Revised Original Cost.*

Making the revisions above indicated, the fair original cost of the existing tangible property in Massachusetts, including working capital, becomes approximately \$40,282,340. Does this represent the amount of "capital honestly and prudently in-



vested" which "must be taken as the controlling factor in fixing the basis for computing fair and reasonable rates"? Neither the company nor the remonstrants, apparently, are willing to agree that the basis for fares ought to be fixed in this way.

The opening statement of counsel for the company, already quoted, clearly indicated that the historic cost of existing property, as determined by the engineering investigation, was to be regarded as the "true basis for fares." In the brief filed at the time of final argument, however, the company argues: —

(1) That the estimate of original cost is incomplete because it covers only "the various physical items which go to make up the structural property of the company" and does not include the cost of certain "intangible property."

(2) That with certain exceptions "the outstanding securities of this company represent actual investment in property and that in justice and equity consideration should be given to the full amount of the outstanding capitalization."

The remonstrants also object to using original cost as a basis for fixing rates. They argue: —

(1) That the existing property was, in part, paid for out of earnings and to this extent fails to represent investment.

(2) That the investment in certain portions of the property was not "prudently" made.

(3) That a large part of the original investment no longer exists, because it has been lost through wear and tear or other forms of depreciation.

*"Intangible Property."*

No evidence was introduced by the company to substantiate its claim of "intangible property." The reasons given are that "with the full history of the company before the Commission this question became an economic and legal question for the Commission to decide" and that "the Commission is an expert body appointed for the purpose of doing justice to the parties in just such situations and no opinion evidence would aid the Commission in this respect." In view of the burden of proof imposed by the statute these reasons can hardly be deemed adequate. If such "intangible property" exists, both the remonstrants and the Commission were entitled to due notice, and evidence should have been produced.

Disregarding this objection, the intangibles claimed are as follows: —

- (1) Reward for promoters' services.
- (2) Cost of securing money.
- (3) Cost of the development of the plant.

The first claim is that a certain amount of over-capitalization was necessary in order adequately to reward promoters and that initiative for the future will be destroyed "unless capital allowance for such services in the past is taken into account." Such evidence as the Commission has in regard to "water" in the Bay State capitalization indicates that it was injected largely during the process of electrifying roads which had long since passed the promoters' stage. In the main, the promoters of the newer enterprises seem to have sought their reward in the shape of construction contracts and to have been satisfied with the profit which they could thus obtain under commission regulation of security issues. Doubtless they often reaped additional profit from enhancement of land values. The New Hampshire Railroad Commission, in 1890, made the following statement: —

The street railways of this state [New Hampshire] were originally constructed by men who had in view the development of suburban lands, or other incidental advantages to themselves, neighbors, and friends, rather than the direct profits which might result from investments in such properties.

Similar motives probably played a part in the construction of street railways in Massachusetts.

The second claim is that cost was incurred in securing capital from investors by paying commissions to bankers or allowing them "underwriting profits." If this was the fact, it was a cost sufficiently tangible so that concrete evidence of its existence might reasonably have been expected. There is no indication in the records of capitalization cases in the past that issues of securities were either allowed or sought for such purposes. New issues of stock have normally been taken by the stockholders and bankers' profits on bond issues have been realized through re-sale to the investing public.

The third claim is that certain "physical development charges" were incurred in "bringing the existing physical property into its present condition of usefulness" and that these charges are represented by the cost of property superseded or abandoned

in the change from horse to electric motive power and in connection with the numerous consolidations which have taken place. Here again tangible evidence might have been expected. No doubt much property was abandoned in the process of electrification, although the amount has been exaggerated. It appears, for example, that horse cars were frequently converted for electric operation and that many of the old barns are still in use. No doubt, also, consolidation revealed some unnecessary duplication of property and resulted in the non-use, for street railway purposes, of certain portions. Land and buildings so superseded and still owned by the company are, indeed, included in the engineers' estimate. The Commission is quite willing to agree, and has so held, in previous cases, that property rendered useless by sudden or abnormal changes in conditions ought not at once to be eliminated in determining the investment upon which rates are to be based. A reasonable opportunity should be given to spread the loss over the earnings of succeeding years. On the other hand, such a policy cannot be continued indefinitely. As the Commission stated in the Middlesex and Boston case (2d Rep. P. S. C., p. 130): —

But the petitioner cannot be permitted to buy its power at a pretty high price and to keep, permanently, unused power plants of its own. Within a reasonable time it will be its plain duty either to equip and use its own plants or to sell the unused property and apply the proceeds to a diminution of the obsolescence. A public utility company cannot be permitted to carry permanently and at the rate payers' expense substantial amounts of dead property.

Electrification took place more than twenty years ago and the process of consolidation more than ten years ago. In the absence, at least, of tangible evidence in regard to the amount and character of property abandoned, and time of abandonment, the Commission is of the opinion that in a case like this, where rates are being based on investment rather than on reproduction cost less depreciation, no allowance for such property should be made.

#### *Appreciation of Land.*

Indirectly, a claim for such an allowance was made even prior to the filing of the brief. In the estimate as originally submitted by the engineers, land was included at present worth instead of original cost, the total appreciation amounting to \$648,502.

Afterwards, at the request of the Commission, the cost figures were substituted. According to Mr. Feustel (Record, p. 258), the increment in land values was at first included on the theory that it fairly offset the loss on abandoned property. As already stated, the evidence is not sufficient to justify an allowance for such property, but, even if it were, there is no good reason for measuring the amount by the appreciation in real estate prices.

Considering this appreciation upon its own merits, car riders cannot fairly be expected to pay higher fares because land has increased in value, nor ought they to pay lower fares if it should decrease. If the company wishes to sell such property it is, of course, entitled to whatever profit it is able to make; but so long as land is employed in the street railway business it is dedicated to a public use and held subject to the conditions fairly attaching to such use. As the Commission has said in another connection (see House Document No. 1900 of the current year, pp. 88, 89): —

While no fair-minded man will deny that those who put their money into public service by building railroads are entitled to the opportunity to earn a fair reward, and even a generous reward if they serve the public well, the notion that this reward is to be determined, so long as their property is devoted to public use, not by investment or by service rendered, but in large measure by the rapid expansion of real estate prices in the larger centers of population, is contrary to sound public policy. It would mean that communities would be penalized by their own growth, and would lose all advantage from the fact that their transportation facilities were created in due season under favorable economic conditions.

It should be added that, even if the doctrine of present worth were accepted, the figure to be used in rate-making would clearly be present worth for street railway purposes. In this case no evidence whatever has been submitted that the land has increased in value for such purposes.

#### *Outstanding Capitalization.*

The company makes the further contention in its brief that "in justice and equity consideration should be given to the full amount of the outstanding capitalization." This is inconsistent with the view expressed by counsel for the company in his opening statement (Record, pp. 40, 41), a view which he reasserted more than once during the trial of the case: —



What then is the "capital honestly and prudently invested" in this railway property?

Under a perfect system of public supervision one guide to that investment would be the aggregate of outstanding securities, but supervision did not begin early enough nor has it been complete enough to make the securities of this company an accurate guide.

. . . . .

Though every share of stock and every bond is lawfully outstanding, this capitalization undoubtedly represents to a greater or less extent over-issue of securities in the early history of constituent companies. *This cripples it as a measure of capital cost.*

Practice in bookkeeping before the consolidation was effected did not require the record of information which is now required, and so the construction account which stands upon the books at \$46,559,327.86 also fails to give the detail which is desired.

Therefore, when it became evident to the management that a revision of fares could no longer be postponed, steps were at once taken to secure a complete and unprejudiced study and inventory of the railway property *as the only sure method for determining the true basis for fares.* An expert engineer, at that time the chief engineer of the Illinois Public Service Commission, was engaged to make it.

In support of its new position, the brief cites the following passage from the opinion of the Commission in the Blue Hill case (Third Report, P. S. C., pp. 59, 60): —

The records show that all of the stock and all of the bonds were issued under the supervision and with the specific approval of the Board of Railroad Commissioners, . . .

The statutes under which these stocks and bonds were issued (St. 1894, c. 462; St. 1902, c. 370; R. L. c. 109, sec. 24) made it necessary for the Board of Railroad Commissioners to find that the issues were "reasonably requisite" or "reasonably necessary" for lawful corporate purposes, before it could give its approval. In like manner, the statutes under which the property and franchises of the Milton Street Railway Company were purchased (R. L. c. 112, sec. 86 and c. 111, sec. 278) made it impossible for the purchase to take effect until its terms had been approved by the Board. The approval of these issues by the Board, coupled with its approval of the terms of the Milton purchase, must therefore be regarded as conclusive evidence, so far as the Commonwealth and this Commission are concerned, that the stocks and bonds so issued represented legitimate investment, not excessive for the purpose, and as strong presumptive evidence that the investment was "prudently" made within the meaning of the rule laid down in the Middlesex and Boston case.



The meaning of this passage is reasonably clear. The general purpose of the so-called "anti-stockwatering" laws is to limit capitalization to honest and reasonable investment, dollar for dollar. When, after careful investigation, securities are approved under these laws as "reasonably necessary" for lawful purposes, investors have a right to rely upon the finding so made and the Commonwealth, in the absence of fraud or manifest mistake, can hardly be heard to say at a later date that the issue was excessive. But where securities have been issued without public supervision or without any such finding, no such presumption exists.

In the present case, as counsel for the company well stated, "supervision did not begin early enough nor has it been complete enough to make the securities of this company an accurate guide." Much of the present capitalization is the result of consolidations in which stocks have been exchanged on a share for share basis and represents securities originally issued by many different companies. Some of the outstanding securities were issued under special statutes or at a time when the general law did not require commission approval. Other issues were approved by the Board of Railroad Commissioners, but without any finding that they represented reasonably necessary investment. The \$2,000,000 coupon notes authorized in 1912 to fund an indebtedness incurred originally for purposes now unknown are an illustration. On the other hand, the reasonable character of some of the securities issued without supervision was later established by appraisals made by the Board in connection with subsequent issues.

While an exact determination is difficult, more than \$11,000,000 of the securities now forming a part of the permanent capitalization of the Bay State company, as nearly as we can ascertain, were originally issued without any express or implied finding, either then or later, by this Commission or its predecessor, that they were necessary for reasonable investment purposes. It by no means follows that the capitalization was "watered" to this extent, to use the common expression; but that a substantial amount of "water" was injected seems certain. It has virtually been admitted that inflation existed in the cases of the Globe (Fall River) and Lynn and Boston roads, and doubtless there were other instances. Indeed the reports of the Board of Railroad Commissioners indicate this. (See 25th Annual Report, pp. 119,120; 26th Annual Report, p. 99; 29th Annual Report, pp. 119-123.)

The following is a list of the securities which fall within the class which has just been described, showing in each case the date, the issuing company and the amount: —

Date.	COMPANY.	Amount.
1866	North Woburn, . . . . .	\$50,000 stock.
1886	North Woburn, . . . . .	50,000 stock.
1891	Whitman (1), . . . . .	40,000 stock.
1892	Whitman (1), . . . . .	25,000 bonds.
1892	Lynn and Boston, . . . . .	275,000 bonds.
1892	Brockton and Holbrook (1), . . . . .	70,000 stock.
1892	Brockton (1), . . . . .	150,000 debentures.
1893	Lowell, Lawrence and Haverhill, . . . . .	899,000 stock.
1893	Lowell, Lawrence and Haverhill, . . . . .	996,000 bonds.
1893	Lynn and Boston, . . . . .	806,000 debentures.
1893	Globe, . . . . .	550,000 debentures.
1893	Wakefield and Stoneham (2), . . . . .	50,000 stock.
1893	Brockton and Holbrook (1), . . . . .	30,000 bonds.
1893	East Side (1), . . . . .	70,000 bonds.
1893	Brockton (1), . . . . .	250,000 debentures.
1894	Globe, . . . . .	125,000 debentures.
1894	Lynn and Boston (3), . . . . .	2,711,000 bonds.
1894	Brockton (1), . . . . .	45,000 debentures.
1895	Fall River, . . . . .	50,000 stock.
1895	Gloucester and Rockport, . . . . .	10,000 coupon notes.
1895	Taunton, . . . . .	200,000 debentures.
1897	Lynn and Boston, . . . . .	940,000 coupon notes.
1900	Rockport, . . . . .	12,500 coupon notes.
1910	Boston and Northern (4), . . . . .	266,000 bonds.
1910	Old Colony (4), . . . . .	251,000 bonds.
1911	Boston and Northern (4), . . . . .	66,000 bonds.
1912	Bay State, . . . . .	1,944,000 coupon notes.
1913	Bay State (4), . . . . .	429,000 bonds.
	Total, . . . . .	\$11,360,500

The status of the securities in this list, excepting those indicated by numerals, has been admitted by the company in its brief. Indeed, the brief places in this class certain securities which the Commission has not included. The explanation in the case of the securities marked by numerals is as follows: —

(1) These securities were issued without supervision, but the company claims that they were "subsequently found by the Commission to have been issued for full consideration" in connection with the approval in 1895 of a small issue of new stock by the Brockton Street Railway Company. It appears, however, that this stock was issued under the special provisions of chapter 516 of the Acts of 1894 and that no appraisal of the property or general examination of its assets and liabilities was made at the time by the Commission.

(2) These securities were issued without supervision but the company claims that they were "subsequently found by the Commission to have been issued for full consideration" in connection with the approval in 1895 of new issues of stock and bonds by the Wakefield and Stoneham Street Railway Company. It appears, however, that these issues were made under the special provisions of chapter 318 of the Acts of 1893 and that no appraisal of the Wakefield and Stoneham property or general examination of its assets and liabilities was made at the time by the Commission.

(3) These securities were approved by the Commission under the special provisions of chapter 517 of the Acts of 1894, which authorized the issue of securities to fund the debt of the company irrespective of the purposes for which this debt had been incurred. The function performed by the Commission in approving the issue was purely formal.

(4) These securities were approved by the Commission to cover the discount on former bonds. They cannot properly be included, therefore, in determining the total capital invested.

The company, it is true, argues that Commission approval of the exchange of securities in consolidations has altered the situation; and cites a passage from the Blue Hill opinion, above quoted, in support of this contention. But there the securities of the Milton company which were exchanged had been issued under full public supervision. Under the theory followed in approving these consolidations, hereinafter more fully considered, the exchanges which were permitted can hardly be deemed to have given to securities a status which they did not formerly possess. It should furthermore be said that public regulation of security issues involves no guarantee that they will continue indefinitely to represent investment upon which a return can reasonably be claimed. Loss or abandonment of property, for example, may in part remove the basis for such a claim.

Outstanding capitalization may, however, be used in this case to test, roughly, the estimate of original cost of existing property. On June 30, 1914, the capitalization of the Massachusetts portion of the system, excluding floating debt but including premiums on stock, was as follows: —

Common stock, . . . . .	\$21,035,900
Preferred stock, . . . . .	2,748,600
Funded debt, . . . . .	23,747,000
Premiums, . . . . .	1,414,680
<hr/>	
Total, . . . . .	\$48,946,180

Deducting the \$11,360,500 of securities listed above, \$37,585,680 of this capitalization has in the past been found by the supervising body of the Commonwealth, after investigation, to represent reasonably necessary investment. Assuming that the \$11,360,500, excluding the \$1,012,000 of bonds covering discount on other bonds, was not more than half "water," which is not an unreasonable assumption, \$5,174,250 should be added to the \$37,585,680, making a total original legitimate investment of \$42,759,930, to compare with \$40,282,340 which we have estimated to be the fair original cost of existing property.

#### *Cost v. Investment.*

The remonstrants claim, first, that the original cost estimate includes all the existing property, whereas a substantial portion was paid for by money taken from income, and, therefore, not *invested* by either stockholders or creditors. Much of the property has, of course, been renewed or replaced from time to time. The remonstrants admit that mere renewals or replacements are properly chargeable to earnings and are to be taken in lieu of the original property, but they claim that income has also been used to pay for additions and betterments.

The theory is, we believe, correct. Additions and betterments paid for out of earnings offset depreciation and protect investment, but form no part of it. If income is used in this way, under the modern classifications prescribed for public utilities the fact is normally disclosed by a depreciation reserve or other surplus account; but such accounts are insignificant in the present case. Under the looser methods of bookkeeping which have prevailed in the past, such expenditures could be concealed by including them in operating expenses with the maintenance charges, and this has been no uncommon practice among prosperous companies.

In the sixteen years in which the Massachusetts Electric Companies have controlled the Bay State system, however, the evidence points to no such padding of maintenance accounts. On the contrary, the tendency has clearly been to capitalize every



possible expenditure and to squeeze from the operation of the road every possible dollar for the payment of dividends. In the preceding period, when there were numerous companies, some of them comparatively prosperous, it is quite possible (and there is some evidence to this effect) that income may have been used for additions and betterments, although the rapid depreciation incident to electrification makes it difficult to believe that the amount was large. But assuming this to be the fact, and recognizing that the original cost of existing property may to this extent exceed the investment in this property, the Commission feels that the history of the system hardly warrants a close application of the theory of the remonstrants and that the difference may be regarded as offsetting any residue of merit which the claims of the company with respect to "intangible property" may have.

#### *Imprudent Investment.*

The second contention of the remonstrants is that the investment in certain portions of the property was clearly imprudent and ought not to be included in determining the "amount of capital honestly and *prudently* invested." They base this claim largely upon the testimony of Mr. George W. Bishop, supported by testimony of the president of the company and by evidence derived from the annual returns made by the companies in the past. Mr. Bishop became a member of the Board of Railroad Commissioners in 1895 and continued in office until it was succeeded by this Commission, of which he was also a member until appointed as chief of the inspection department in 1914. His knowledge of street railway history in this Commonwealth is therefore extensive. In a report upon the present physical condition of the Bay State property, Mr. Bishop made the following statement (Exhibit 64, p. 2): —

A large portion of the railway constructed for the use of electric cars was built by promoters, evidently for sale and profit. It was most fortunate for them that a ready customer was at hand, as many of the properties were of a cheap type and the revenue so limited that the companies as separate corporations would probably have been of short duration.

Upon the witness stand he amplified this statement and specifically named the roads which he believed were originally constructed, not in the hope of profit from operation, but in the expectation that somebody could be induced to buy them. He



further testified that his impression in regard to these properties was the same at the time when they were built (Record, p. 4247). Later, the president of the company agreed that many of the Bay State lines were "speculative" in their origin and, indeed, the returns filed during the period when these roads were operated by separate companies indicate how small the prospect of adequate earnings must have been.

This contention makes it desirable to define more clearly than has hitherto seemed necessary the meaning and application of the word "prudently," as it has been used in the phrase "capital honestly and *prudently* invested." It is not the enterprise itself to which this word relates so much as the manner in which it has been carried out. Whatever imprudence may be involved in risking capital in new and uncertain ventures is not in itself detrimental to the public welfare. On the other hand, if, in the carrying out of an enterprise, capital is used in a wasteful or foolish way, the contrary is clearly true.

To illustrate the difference: If a railroad is built with due economy in a territory where financial results are not promising, it may prove impossible to earn a return upon the investment, but there is no reason why the opportunity should be denied. But if a railroad is built in any territory for far more than it should reasonably have cost, its owners have no just claim even to the opportunity of securing from the public a return upon that portion of the capital which has been squandered. In the present instance it may well be true that certain roads now a part of the Bay State system were built by promoters with questionable motives. At the same time, the people served are better off than if the roads had never been constructed and, in the absence of evidence that the cost was excessive, the owners are entitled to a reasonable return upon the investment, if it can be earned.

It does not follow, however, that they are entitled to make up deficits upon such lines by drawing on the resources of other lines which they may happen to own. It was this to which the Commission referred, considering the entire property as a unit, when it said in the Middlesex and Boston case (2nd Rep. P. S. C., p. 116): —

If the Commission finds a street railway company investing money in building extensions contrary to the dictates of reasonable prudence and sound business judgment, it is its plain duty to refuse any, or at any rate a full return upon such investment.

How far and under what circumstances paying lines can reasonably be expected to support non-paying will later be considered.

*Loss through Depreciation.*

The remonstrants further contend that a substantial portion of the capital invested has been lost through depreciation and that the patrons of the road cannot fairly be asked to pay a return upon something which no longer exists.

According to Mr. Feustel, at the time of his report the property averaged but 68.9 per cent condition (Exhibit 39). In other words, it had depreciated 31.1 per cent. Upon the basis of original cost, the accrued depreciation thus amounted to about \$12,000,000, and no reserve has been accumulated to offset it. The company, however, claims that its failure to make proper provision for depreciation has been due to insufficient earnings and that it ought not to be penalized because of this deficiency.

The question thus raised is not without difficulty. On the one hand, if the property of a company has been wearing out in the public service and if its receipts have not been large enough to yield a fair return and make good the wear and tear, is it right that a basis for fixing rates should now be adopted which will make it impossible to secure a return upon the full amount of the original investment? The question is, not what the strict constitutional rights of the company may be, but what is just and fair. On the other hand, if a community is served by a company which entered the field of its own volition and has failed, for reasons over which its present patrons had no control, to keep its property intact, is it right that these patrons should be compelled to pay for the use of an old and worn out system as much as if the property were new?

This question has, in part, been considered by the Commission in previous cases. In the Middlesex and Boston case the Commission ruled that the honest and reasonably prudent investment must be taken as the basis of fair and reasonable rates and that, in the absence of mismanagement or the payment of excessive dividends, no deduction should be made for depreciation. In rejecting the theory that rates should be based upon the reproduction cost less depreciation, the Commission made the following comment (2 P. S. C. Rep. 108): —

On the other hand, this theory is grossly unjust to prospective investors in that even when the investment is made with entire honesty and with reasonable prudence, — yet if, pending the building up of the new busi-

ness, the plant depreciates below the fair cost to the investors, rates must, under this theory be made adequate to make return only upon the reproduction cost of the property in its depreciated condition. This amounts to saying that money lost during the earlier stages of a public service enterprise is *irretrievably* lost by the stockholders; that if, perchance, rates have been fixed so low that the rate-payer has for a period of years obtained a service at less than cost, this is the permanent misfortune of the stockholders — and that the public should never, at any time and under any circumstances, be called upon to make up a deficit thus incurred.

The question as to whether deduction should be made for depreciation was also discussed in the Blue Hill case, in which the general conclusions of the Commission were summed up as follows (3 P. S. C. Rep. 75): —

The ruling of the Commission in the Middlesex and Boston case was accompanied by the express stipulation “that if there is mismanagement causing loss, such loss must be charged against the stockholders legally responsible for the mismanagement.” In other words, the company is held to the same standard of honesty and prudence in the management and maintenance as in the original acquisition of its properties. It must, so far at least as it reasonably can, keep its investment good. If through some fault of its own it has failed to make due provision for depreciation, it cannot reasonably expect the public to pay a return upon that portion of the investment which it has neglected to preserve. But under a consistent application of the investment theory, it would seem in general that deduction should be made for the depreciation which comes from age and use in so far only as the failure to make provision for it is due to the payment of unwarranted dividends or is otherwise attributable to mismanagement.

In applying this principle to the circumstances of that case the Commission ruled that “the failure to make provision for depreciation and the virtual loss of invested capital caused thereby cannot justly be ascribed to mismanagement. To sum the matter up, the property has depreciated in value in the public service, and the stockholders have had no dividends. On the other hand, the public served has been receiving transportation at less than real cost, and has, in effect, used up a portion of the property without giving an equivalent in return. . . . Under the circumstances of the case, then, we rule that, in determining the revenues to which this company is fairly entitled, allowance should be made for an amount equal to a fair return upon all the ‘capital honestly and prudently invested’ without deducting

accrued depreciation. In ruling to this effect, however, we must not be understood as deciding that the company can, if it earns the amount to which it is entitled, properly pay dividends to its stockholders before the depreciation and other deficits from past operation have been made good. That is a question which it is unnecessary to decide at this time." (3 P. S. C. Rep. 76.) In that case no dividends whatever had been paid by the company. A more difficult question arises in the case of a company which has paid dividends of some amount and has at the same time neglected to provide adequately for depreciation. Dividends can be properly paid only when there are genuine profits to distribute after the payment of all fixed charges and expenses of operation. If the payment of dividends has been made possible only through failure to provide for that portion of the true expense of operation represented by depreciation such dividends have not been earned and ought not to have been paid.

The following testimony by Louis B. Franklin, vice president of the Guaranty Trust Company of New York, and a witness for the company, illustrates the present attitude of conservative business men towards this question (see Record, pp. 548, 549): —

Commissioner EASTMAN. You will agree, will you not, that well managed industrial companies have for years made provision for depreciation in one form or another?

Mr. FRANKLIN. I will.

Commissioner EASTMAN. Do you think it is good management to pay dividends which are not earned?

Mr. FRANKLIN. I do not.

Commissioner EASTMAN. Where the failure to earn them is due to failure to take care of depreciation?

Mr. FRANKLIN. I do not, unless there is a definite surplus which has been set aside from good years, out of which such dividend can be paid; and therefore the need of a surplus.

Mr. JACKSON. Supposing that a company is faced with this situation, that the income is not sufficient to pay wages, interest on bonds, regular operating expenses, and meet a reserve for depreciation, and that company absolutely needs capital to go on with its service, and that company has stockholders that under the law are entitled to subscribe for any new stock, and those stockholders are ready to subscribe, notwithstanding any circumstances under a law that requires its issue at par; would you consider it improper management for a company to pay enough dividends to keep the credit good for that purpose, of getting money in that way, in order to continue its business?

Mr. FRANKLIN. I would consider it bad practice unless the company



immediately took steps to increase its income or had a definite means or supposed means for increasing its income. As a temporary tide-over I think such a declaration of dividends can be justified, but it should be very temporary and it should not be done, in my opinion, unless the means for increasing income is definitely sought and there is one that within the opinion of the management can be obtained.

It is doubtless true that it would not now be regarded as sound business practice for a public utility company to pay any dividend whatever at the expense of adequate provision for depreciation. But as this witness pointed out (see Record, p. 547), and as will be more fully discussed later, it is only within the last few years, apparently, that street railway companies have realized the importance of providing for future depreciation. In dealing with past transactions of such companies it would in many cases work injustice if the rule were inflexibly applied that a company which has failed to make adequate provision for depreciation ought to have paid no dividends whatever. This is clearly pointed out in the following extract from the Middlesex and Boston case (2 P. S. C. Rep. p. 138): —

Counsel for certain remonstrants have suggested, not with great apparent confidence, that the payment of even the moderate dividends paid by this company, without taking care of depreciation, is mismanagement seriously affecting the right to a fair rate. But there is a great practical difference between the payment of dividends averaging 4.35 per cent, no more, perhaps even less, than an investment rate on money (which tends to keep the corporation in some sort of credit), and the payment of dividends in excess of an investment rate which would tend to put the stock of the company on a speculative basis. The payment of large dividends, in substantial excess of an investment return upon money, without proper care of depreciation, would be clearly gross mismanagement calling for condemnation and perhaps substantially affecting even a rate case. But in the present case, dealing with the right of this corporation to have a living wage, for its capital, the fact that the stockholders have hitherto received small dividends, makes no material difference in the claim of the corporation for an increased rate. But we make it very plain that the payment of dividends in excess of an investment rate, without caring for depreciation and all other proper operating charges, would be mismanagement requiring the Commission's effective condemnation.

In dealing with this question the test is whether, under the facts and circumstances of the particular case, the failure of the company to make full provision for depreciation has been, in the language of the Blue Hill case, "due to the payment of un-



warranted dividends or is otherwise attributable to mismanagement."

The average dividend paid by the Bay State and its predecessor companies from 1862 to 1900 was 3.63 per cent and from 1900 to 1916 was 4.20 per cent, the average over the whole period being 4.07 per cent. Even if the amount of excessive capitalization is eliminated and the return is figured on the actual legitimate investment the dividends paid by the company in the past average less than a fair return upon the money originally put into the property and cannot therefore be regarded as "unwarranted" in the sense of representing unreasonable profits to the investors. Neither can the Commission, consistently with the precedents established in its former decisions, regard as unwarranted the payment of dividends in the past, irrespective of amount, by a company which has neglected to provide fully for depreciation. In the Middlesex and Boston, the New Bedford and Onset and the Norfolk and Bristol cases, no deduction was made for the depreciation which the Commission found in the properties, although small dividends had been paid by each of these companies. Indeed, in the case of the Middlesex and Boston company, slightly larger dividends, on the average, had been paid than those of the Bay State company.

The Commission is, however, of the opinion that the Bay State company cannot, in the light of its past history, be wholly excused for its failure to provide for depreciation.

The street railway companies acquired by the Massachusetts Electric Companies in 1899 differed widely in character and type. Some were well-established city systems with good earning power, though not always in good physical condition. Others were newly built and highly "speculative" country lines. The properties were acquired towards the close of a boom period in electric railway construction involving dangers against which the Board of Railroad Commissioners had repeatedly warned investors. As early as 1894, the Board made the following impressive comment (25th Rep., pp. 109, 110): —

A well located and well managed electric railway, it may be fairly said, stands a similar chance of financial success with a well located and well managed railroad or horse railway. Upon the present showing and outlook, it certainly stands no better chance. If badly located or badly managed, there clearly has not been manifested as yet any miraculous power in its peculiar system of locomotion to save it from the familiar fate of the railroad or horse railway when struggling under the same difficulties.

It can and should be said, however, without hesitation or qualification,

that the electric system has not shown or indicated any such margin of profit as to justify the expectation of more than moderate and ordinary returns on money legitimately invested in it. The idea, which seems to have obtained some currency, that the electric railway system is a bonanza of rare and inexhaustible wealth, is clearly a delusion, and has doubtless proven to some a snare. The absolute cost and expensiveness of the system under the most conservative, able and honest management, are sufficient to task its earning capacity to the full limit. There is no margin for fictitious or inflated capitalization. It presents no safe or inviting field for speculative enterprise or manipulation, unless it be to the unscrupulous operators of an inside ring who are willing to practice on the credulity of a misinformed public. Wherever there is reason to believe that water has been, or is about to be, injected into the stock or bonds of an electric railway company, the only safe course is to let its securities severely alone.

Instead of inflating the liabilities and straining the earnings and surplus for the division of ostensible profits, the manifestly safe and imperative policy for the electric companies, — and that without special regard to the present unusual stringency of the times, — is to keep the capitalization and charges upon income within the narrowest practicable limits, *and to set apart year by year some substantial portion of the earnings as a fund for future contingencies, and for the increasing burdens of expense which are sure to come and whose weight is now only partially felt or known.* The recent action of the directors of the West End Company, — much the largest and one of the most ably and successfully managed of the street railway companies, — in voluntarily reducing the rate of dividend on its common stock, was eminently wise and commendable in every point of view. Such action ought to enhance, and doubtless has enhanced, the value of the stock in the estimation of every well-informed stockholder and sagacious investor. (Italics ours.)

In 1898, just before the advent of the Massachusetts Electric Companies, the following statement was made (29th Rep., pp. 108, 109): —

The greed for dividends on the part of the stockholders of many of the companies, who have generally invested with the mistaken expectation of not only sure but lucrative returns, is often too importunate for the managers to resist; but the practice of paying dividends where no divisible income has been earned, or in excess or anticipation of such income, *or even to the full amount of such income, with no reserve for depreciation,* is vicious and fatal in the end to the strength and success of the company. (Italics ours.)

The Massachusetts Electric Companies is an unincorporated voluntary association subject to no public regulation. It was formed under an “Agreement and Declaration of Trust” dated

June 29, 1899, in accordance with which it issued to two banking firms of Boston \$12,000,000 par of its preferred shares and \$12,000,000 par of its common shares in exchange for the common stocks of various street railway companies, which these bankers had acquired, and sundry minor assets. The par value of the common stocks aggregated but \$8,047,000. The minor assets were made up of \$397,422.89 in street railway notes, \$575,000 par value of common shares of the Massachusetts Electric Companies, cash to the amount, of \$930,702.92 and certain contract rights of insignificant value. The total par of all the securities was but \$9,019,422.89 which, added to cash, made \$9,950,128.81 (see Exhibit 42). In other words, the par value of the preferred shares of the voluntary association, to say nothing of its common shares, was materially greater than the par value of the underlying securities plus all the other assets, and these securities consisted, in the main, of nothing better than the common stocks of street railway companies, many of which were untried and "speculative" enterprises and some of which had deficits on their books.

According to the treasurer of the Bay State company (Record, p. 2552), these preferred shares of the Massachusetts Electric Companies, which were entitled to cumulative dividends at 4 per cent per annum, were "represented as being a most conservative and safe investment, especially for trustees and similar people. They could not hope to make any particular profits out of them but they were as nearly certain as they could be." The president of the company confirmed this statement (Record, p. 5028). It seems that they were widely sold to the investing public in the early years at about \$93 per share (Exhibit 42).

Under these circumstances it was not unnatural that the Massachusetts Electric Companies should seek, as it apparently did, to secure the utmost possible revenue from the stocks which it held. The graphic curves prepared by Mr. Feustel (Exhibit 60) showing the combined maintenance expenditures of the street railway properties per car mile and per track mile took a sudden dip in 1899, when the holding company gained control, and did not rise to their former level again until 1905 (see Appendix D). The experience in 1901 is significant. In that year, at a time when the flotation of the shares of the Massachusetts Electric Companies was in process, large dividends were declared on the underlying stocks (averaging 8.16 per cent for all the properties), exceeding net earnings by \$143,013.

Since 1899 the yearly dividends on the aggregate stock issues of the Bay State system have averaged as follows: —

Year.	Per Cent.
1900, . . . . .	3.94
1901, . . . . .	8.16
1902, . . . . .	5.31
1903, . . . . .	4.90
1904, . . . . .	2.83
1905, . . . . .	2.13
1906, . . . . .	3.84
1907, . . . . .	4.69
1908, . . . . .	4.69
1909, . . . . .	5.09
1910 (9 months), . . . . .	2.57
1911, . . . . .	5.45
1912, . . . . .	5.08
1913, . . . . .	5.57
1914, . . . . .	5.32
1915, . . . . .	2.65
1916, . . . . .	.69

In considering these dividends the inflation in the capitalization must be borne in mind. Figured upon bona fide investment the percentages would be larger. In every year there have been small apparent surplus earnings, after the payment of dividends, except in 1901, 1903 and 1904, when there were deficits amounting to \$143,000, \$26,000 and \$70,000. However, aside from the question of depreciation, if the \$1,414,680 of premiums paid in by stockholders from time to time on new issues of stock had all been properly set up on the books as a liability, according to modern practice, instead of being credited in part (as if they were earnings) to profit and loss, the balance in that account on June 30, 1914, would have been a deficit of \$843,668 instead of a surplus of \$213,532.

During the time when these dividends were being paid, no attempt whatever was made to provide for future depreciation by creating a reserve fund until the regulations of the Interstate Commerce Commission, two years ago, made it necessary to set something aside for depreciation on rolling stock, a reserve which as yet is insignificant. The president of the company testified (Record, pp. 5064-5070) that he realized when he took up the management of the system in 1899 that the property would not last forever and that in future years the amounts necessary for renewals would increase sharply. Notwithstanding,



he and his associates considered it sound policy to make renewals when necessary and let the future look out for itself, for they felt confident that revenue would increase rapidly enough to cover all contingencies.

In considering that policy, the fact must be kept in mind that in all street railway properties there is a constant deterioration of the plant from the moment of its use until there comes a time when the physical units as the result of wear and tear or obsolescence can no longer be made useful by ordinary repairs and must be discarded and replaced by new property. If this deterioration has not progressed sufficiently to require a replacement, the property in which it exists still being in place in a state of usefulness with a part of its service life remaining, the depreciation is usually described as incomplete or accrued depreciation. On the other hand, where the useful life of the property is exhausted, although the property is still in place, the depreciation is termed complete or matured depreciation. Under the policy adopted by the Bay State company it was assumed that no account need be taken of incomplete depreciation if current repairs were attended to and if the necessary renewals were made when the depreciation became complete. This theory, as we have already pointed out, would not now be regarded as sound business policy. The necessity has been recognized of establishing a depreciation reserve in the nature of an insurance fund to provide for the heavier demands for renewals in the later years of the service life of the property. It was, however, the theory of the management of the Bay State company that the creation of a reserve fund was not necessary to provide for depreciation but that renewals could be made from time to time as the need for them arose as part of the maintenance expense.

In determining whether such a view might have reasonably been entertained, it is proper to point out that the Bay State system was made up of a large number of city, suburban and interurban lines, some of which were nearly forty years old, while others had not been completely built. It was a highly composite and heterogeneous property of varying condition of upkeep and service life. There may have seemed at the time some justification of the view that the property had reached a condition where the renewal requirements of successive years would not vary greatly in amount, or at any rate, would not increase more rapidly than the growth of travel which might be anticipated from the improved transportation facilities made possible through electrification.



Although the risks attending this method of providing for depreciation were clearly pointed out by the board of railroad commissioners, as shown in the citations given above, and have for many years been recognised by conservative business concerns in the industrial field, it has to a large extent been the generally accepted policy in street railway circles. It was not until two years ago that the Interstate Commerce Commission required electric railway companies to set up a depreciation reserve in their accounts and the present requirement applies to equipment only. The decisions of courts and commissions in the various jurisdictions also clearly indicate that the subject of depreciation in its practical application to the field of public utilities is still in many respects a moot question. In view of all the circumstances, the Bay State company should not be too severely criticized for adopting a policy which was in conformity with the prevailing standards of the time and to a certain extent with existing practice, even if experience has since shown that it was erroneous.

It is proper to observe, however, that there would probably have been less reason to criticize this theory if it had been consistently applied. Even if it should appear reasonable in view of all the facts that the past conduct of the Bay State company should be judged by the theory which it has professed of providing for complete depreciation only, it must be borne in mind that that theory imposed very definite obligations which have not been met by the company. It has not only neglected the future but it has neglected the present. The very essence of its theory was to care for current repairs and renewals and to maintain the property in suitable condition for efficient, safe and economic operation. This has not been done. According to Mr. Feustel, a street railway company such as the Bay State company, in order to be in first class operating condition, ought to show a condition per cent based upon the physical property, exclusive of land, of approximately 75 per cent (Record, p. 1185). The president of the company placed the figure somewhere between 75 per cent and 80 per cent (Record, p. 4909). As shown above, Mr. Feustel estimated the percentage condition of the Bay State property at 68.9 per cent, or if land is excluded at about 67½ per cent (Record, p. 1187). On the basis of these estimates, the condition per cent of the Bay State property in 1914 was therefore about 7½ per cent below a proper operating standard. Much of the rolling stock is in wretched shape. In addition to

general lack of paint and proper repair many of the cars are obsolete in type and long ago were due for replacement. The same is true of a substantial percentage of the track. Mr. Bishop found much of it in very bad condition and it seems to be admitted that renewals are overdue on about 120 miles. The overhead system is hardly better off. Nevertheless, dividends for 1913 were increased from 5 to  $5\frac{1}{2}$  per cent at the very time when the testimony shows that even ordinary maintenance was being neglected (see Record, pp. 5070-5073).

In view of the overcapitalization and poor physical condition of some of the older properties taken over in 1899, in view of the cheap construction and speculative character of many of the newer properties, and in view of the repeated warnings of the Board of Railroad Commissioners, the managers of the system had ample reason for caution. Apparently they were, however, unduly hopeful of the future and desirous of demonstrating the advantages of the union of the roads. In not a few cases fares were reduced voluntarily or upon recommendation of the Board, and from these reductions the public has benefited. It is also true that, under our laws, a company which is not paying dividends finds it difficult to finance its needs. Furthermore, the dividends paid in the present case have not, on the average, been large.

If neglect had been confined merely to incomplete depreciation and if existing property had been maintained in suitable condition for efficient, safe and economic operation, we should be disinclined, notwithstanding the payment of dividends, to hold that the loss was caused by mismanagement which must be charged against the stockholders. But where, as in this case, a company has neglected, not only incomplete but complete depreciation and has failed to replace property which is obsolete, inadequate or worn out; and where the payment of dividends has been continual, a different state of affairs exists. It will hardly be denied that failure to replace such property not only increases operating expense but decreases revenue. How marked this effect may be cannot be determined with accuracy, but certainly it is substantial.

Upon consideration, the Commission is of the opinion, under all the circumstances of the case, that the failure to make due provision for the complete depreciation of a portion of the property was mismanagement which ought to be charged against the stockholders legally responsible therefor. The extent of the

complete depreciation upon the Bay State system may be measured by the  $7\frac{1}{2}$  per cent deficiency referred to above in the per cent condition of the property below the standard of first class operating condition. This is, we believe, a conservative estimate. Upon the basis of the fair original cost of existing property (eliminating working capital) found on the evidence to be about \$40,282,340, the complete depreciation in 1914 may be placed in round figures at \$2,900,000.

Upon the principle laid down in the Blue Hill case, such depreciation resulting from mismanagement represents investment which has been lost and which ought, until the deficiency is made good, to be deducted in determining the present amount of "capital honestly and prudently invested" to be used as the basis in fixing rates. That method, in theory at least, provides for a reduction pro tanto in the yearly dividend rate which might otherwise be paid. In this case, however, the benefits to be derived both in increased revenue, decreased operating expense and improved service from an immediate rehabilitation of the property are so clearly indicated that the duty of the company, not only to the public but to its own stockholders, demands that it make an early restoration of the values which have disappeared from the property by taking care of current repairs and renewals and replacing antiquated and decrepit property before figuring the profits available for distribution in the form of dividends on common stock. While this ruling may seem harsh to stockholders, who have at best received only a moderate return, we are convinced that it is not only in the general public interest but in the interest of investors themselves that a certain portion of the earnings should be put back into the property in order to make it a profitable as well as an efficient agency of transportation. We are also convinced, under the circumstances of this case, that this method of dealing with the present complete depreciation in the property will work out better results in the general public interest than if the amount were deducted from investment cost in determining the basis of a fair return for rate-making purposes.

#### *Summary.*

Summing up the results of the above discussion, in determining the present "amount of capital honestly and prudently invested" in the entire Massachusetts property, the following

deductions must be made from the \$42,987,405 estimated by the engineers to be the fair original cost of the existing property, including working capital: —

	Amount.
Deduction: —	
On account of unit prices, . . . . .	\$600,000
On account of overhead charges, . . . . .	1,822,343
On account of working capital, . . . . .	282,722
	<hr/>
	\$2,705,065

Making these deductions, the amount is \$40,282,340.

There are, however, certain further sums which should be deducted in determining the basis to be used in fixing fares for passenger service in Massachusetts: —

(1) *Unused Property.* — The estimate includes property, classified as "Miscellaneous Physical Property (unused)," which, according to the engineers, cost \$304,244 and has a present worth of \$418,839. This property is chiefly land upon which car barns or power stations were formerly located. It was abandoned for street railway purposes, for the most part, at least ten years ago, but has since been retained, the company deriving each year a small income from rentals. While this property was originally purchased for street railway needs and while it was abandoned, in general, because of abnormal changes in conditions, the opportunity to dispose of it has been open for so long a time that it ought not now to be included in the investment upon which fares are based. The present value, as compared with cost, indicates that the land, at least, is salable. If the company sees fit to retain this property, the return must be secured from the income which it yields; car riders should not be called upon to make up any deficiency. Its cost should, therefore, be deducted and its income should also be eliminated from consideration.

(2) *Property Leased to Boston Elevated.* — The original cost estimate includes certain street railway lines, located largely within the city of Boston, which are leased to the Boston Elevated Railway Company. The cost of these lines is given by the engineers as \$939,140. The rental for the year ended June 30, 1914, after deducting taxes, amounted to \$37,700, or about 4 per cent upon this cost. If this is not a reasonable return, at least the patrons of lines which have not been leased ought



not to bear the burden. The transaction was a voluntary one and, if its judgment was bad, the company must pay the penalty. The cost of these lines and the income from them should, therefore, be eliminated for present purposes.

The deduction for the property leased to the Boston Elevated, making the necessary allowance for the reduction in unit prices and overhead charges, is \$885,000. The deduction on account of the property unused for street railway purposes, making a similar allowance, is \$293,000. Making these further deductions, the amount which must be used as the basis in fixing passenger fares within Massachusetts becomes \$39,104,340.

#### MAINTENANCE AND DEPRECIATION.

As shown above, the company estimates that it should have expended for maintenance and depreciation, in the year ended June 30, 1914, \$1,063,145 more than it actually did spend. Is this estimate reasonable?

Expenditures for labor and materials incident to keeping the physical property in operating condition and providing for repairs and renewals are broadly classified as maintenance and depreciation charges. The distinction between the two is largely, although not wholly, arbitrary. A certain amount of labor which is not connected with any replacement of materials is required to keep the property in good operating condition, and the cost of this is always classified as maintenance. Work on the roadbed, certain repairs to equipment and the clearing of snow and ice from the track are illustrations. Where replacements are involved, the distinction usually made is largely one of size. The recognizable units of street railway property for the most part are composite, — that is, made up of fairly distinct parts. Sooner or later the unit must be renewed as a whole, but before that time arrives parts must often be replaced. The renewing of the unit as a whole is usually classed as a depreciation charge, while the renewing of the parts is called maintenance. To illustrate, a car body must eventually be renewed as a whole, and this is clearly depreciation. In the meantime its paint requires frequent renewing, panes of glass break, seat covers must be replaced. Minor replacements of this character are maintenance.

This is the distinction which the engineers of the company followed. There is, of course, room for considerable divergence of opinion in deciding what units to use in this classification.



Mr. Feustel divided the property into smaller units than are usually recognized and hence left less renewals to be taken care of through maintenance. For example, instead of regarding the car, ready for operation, as a single unit, he considered each of the following parts as a unit: —

Body,  
Trucks,  
Motors,  
Controllers,  
Controller cable,  
Air brake compressors,  
Registers,  
Arc headlights,  
Jacks,  
Saws.

For purposes of reference his complete list of depreciable property units, with the lives assigned thereto, is given in Appendix E.

#### *Annual Depreciation Charge.*

In determining the provision which ought annually to be made for depreciation, the engineers first eliminated all property, such as land, which does not require eventual replacement. They then estimated the normal life of each unit of the remaining property and determined the net depreciable investment by deducting from original cost the final scrap value, if any, and the non-depreciable overhead expense. All overhead charges were considered as depreciable, with the exception of those for Organization and for Taxes during construction. Dividing the net depreciable investment in each unit by its normal life gave the amount which should be set aside each year to provide for ultimate replacement. Adding these amounts gave the annual depreciation charge for the entire property, which was thus found to be \$1,410,616. The "composite life" of the entire property, based upon these estimates, proved to be 29.26 years and the annual depreciation, expressed as a per cent of the total investment, was 3.4 per cent. The "composite life" of the depreciable property alone was 22.69 years and the annual depreciation, 4.41 per cent.

Having estimated the necessary annual provision for depreciation, it became necessary for the engineers to determine how

much had actually been spent for this purpose by the company in the year ended June 30, 1914. How they did this is described in their report as follows (p. 17): —

The Bay State Company has, in common with most all other street railway companies, included all charges for maintenance and depreciation in the one account of Maintenance. In order, therefore, to determine the additional amount required for depreciation, it was necessary to separate from the maintenance charges for the year ending June 30, 1914, the amount, which under our theory of computing depreciation, would have been charged to this latter account.

The maintenance accounts which involved both labor and materials were examined for the three last years available. The material sheets from all store houses were scrutinized in an endeavor to determine whether or not the material was used for the type of a repair or renewal which, according to our previous computation, would have been paid for out of the depreciation fund. If the labor charges for the materials so assigned could not be found directly, they were estimated, using the same units as used for those classes of items in the investment valuation. We were able in this way to make a comparison of these charges for three years and to arrive at a reasonable deduction to be made for the year in question. As the actual operating expenses were to be apportioned for the year ending June 30, 1914, the deduction was made from the depreciation requirements as computed. The amount deducted was \$347,471, and the details are given in the tabulations on depreciation.

Deducting the actual expenditure (\$347,471) so found from the amount estimated to be necessary (\$1,410,616), the engineers reached the conclusion that the company should have appropriated for this purpose in 1914 the additional amount of \$1,063,145.

Disregarding for the moment questions of fact, the Commission is of the opinion that the theory which the engineers followed in estimating the necessary annual provision for depreciation is, in the main, correct. We say this appreciating fully that it is a theory which street railway companies in Massachusetts have never, apparently, recognized until very recently and which they certainly have never put into practice. To rely, however, upon the mere hope that earnings in the future will increase sufficiently to supply the funds necessary when replacements become due is not only dangerous, as events in this case have demonstrated, but it is also unjust. Future patrons ought not, if it can be avoided, to be called upon to provide the funds necessary to replace property worn out in past service. If it proves that the

car riders of the future can supply more revenue than is needed for a reasonable return, after meeting the costs which they themselves impose, they are entitled to the benefit of lower fares. The annual loss of property through wear and decay is a true part of the cost of operation and a proper recognition of this fact is essential if the future interests, both of investors and of the general public, are to be protected.

In theory, at least, a different rule might be applied in the case of depreciation due, not to wear or decay, but to obsolescence or inadequacy. When property is replaced for either of the latter causes, something better is substituted. The position of investors is improved, because the new property is usually more efficient and economical, and at the same time the public is given better service. For these reasons it would not be unfair to ask future patrons to pay for replacements in so far as they are made before property is actually worn out and this could, indeed, be done gradually through some form of suspense account. We are inclined to agree with the company, however, that it is unwise to attempt to draw too fine a distinction between different forms of depreciation. The community is a continuing body and the car riders of the present to an extent will be the car riders of the future. A sound public policy demands that a company should be in a position where it will not hesitate to replace inadequate or obsolete property.

The one apparent flaw in the theory advanced by the company's engineers is that they have estimated the necessary annual appropriation for depreciation by the so-called "straight line," rather than by the "sinking fund," method. The former assumes that the reserve for depreciation earns nothing for itself, while the latter assumes that it is constantly accumulating by reason of such earnings. Obviously the sinking fund method calls for a materially lower depreciation charge each year. The objections to the straight line method may be illustrated by the case of a power station costing \$1,000,000 and estimated to last for fifty years. At the end of half that time the building will still be serving its purpose and earning money for the company, and there will also be a depreciation reserve amounting to \$500,000. This fund may have been invested in securities or it may have been used in making additions and betterments to the property, but in either event it will be yielding income aside from the income which the power station is producing. Clearly, the stockholders are not entitled to the earnings from both

sources and the depreciation reserve ought to be credited with what it produces.

In his testimony Mr. Feustel freely admitted this fact and stated that he would unhesitatingly advocate the sinking fund method if the company were new. In this case, however, the property is old and no reserve has been accumulated. Therefore, the replacement requirements, if we understand the argument correctly, are likely to exhaust the estimated annual appropriation for depreciation and leave little if any balance to be invested. This disposes of the claim which at first was made that the estimated allowance for depreciation includes no provision for past accrued and uncared for depreciation (Record, p. 1106). Upon the sinking fund basis, assuming interest at 4 per cent, compounded annually, the yearly depreciation charge would be \$907,917, as compared with the straight line figure of \$1,410,616. Assuming interest at 5 per cent, the amount would be but \$812,969. It will thus be seen that the difference is substantial and that the question whether present patrons of the road ought to pay more than would be necessary if depreciation had not been neglected in the past is of decided consequence.

The annual reports of the Massachusetts Electric Companies indicate that certain of the older properties, taken over in 1899, were found to be much in need of repairs and renewals. Indeed the president of the Bay State company has testified that this was particularly true of the largest property of all, the Lynn and Boston (Record, p. 4931). Nevertheless replacements charged to profit and loss since that time have averaged but \$187,491 annually (see Exhibit 60). While less complete information is available in regard to depreciation renewals charged to maintenance account, Mr. Feustel found that in the period from 1910 to 1914, inclusive, the amount averaged less than \$350,000 per year and has testified that in all probability very few such renewals were charged to maintenance prior to that period (Record, p. 1571). In these three years — 1912, 1913 and 1914 — the total replacements and renewals, including those charged to profit and loss, averaged less than \$560,000 per year. In the face of these facts we are asked to believe that similar requirements for the future will exhaust, each year, an appropriation of \$1,410,616 for depreciation, so that no balance will be left for investment in new property or securities. Deferred renewals now amount to about \$2,900,000; but we have already indicated that the stockholders, under the circumstances of the



case, may reasonably be called upon to make good this deficiency by foregoing dividends for a period. It is true, however, that many additional renewals will soon be necessary and that replacement requirements in the future will be heavy if the property is to be brought to and kept in first-class, modern operating condition.

Upon consideration of all the evidence, and having in mind the fact that the annual provision for depreciation estimated on the engineers' theory is far larger than street railway companies have apparently in the past thought necessary, the Commission is unable to conclude that current requirements will make it impossible to accumulate any reserve for future needs, but is of the opinion that a fair adjustment may be made by estimating half of the annual depreciation allowance on the straight line basis and half on the sinking fund basis at a 4 per cent interest rate. The total annual requirement, estimated in this way and taking the engineers' figures as a basis, becomes \$1,159,266 instead of \$1,410,616. This imposes a somewhat larger burden upon the public than would be necessary if the property were new, but it should be borne in mind that if, by foregoing dividends in the past, the company had been able to accumulate an adequate depreciation reserve, it could with reason claim that it should now be allowed an enhanced return to compensate for past sacrifices. Moreover, as already stated, not a few fares have been reduced and not a few transfer privileges have been extended since the present management has been in charge and the community has had the benefit. Upon the whole we think that the comparatively small additional burden imposed by estimating the depreciation allowance in this way is one which the public can fairly be asked to assume.

In estimating the normal lives of the various classes of property the engineers have been conservative. While it may be argued that too short a period has been assigned in certain cases, in the main the lives are longer than those which have been used in similar cases in other jurisdictions. They were not seriously questioned by the remonstrants and for the purposes of this case may reasonably be accepted.

The necessity for a depreciation allowance in certain cases, however, is open to question. "Paving" is an important item, the engineers estimating the cost at \$3,966,540 and the annual allowance at \$105,804. While this paving was installed by or at the expense of the company, it is a part of the public way and the present law does not require the company to repair or renew



it unless such an obligation was imposed by the original grant of location (see report of this Commission on the "Repair and Maintenance of Public Ways and Places in which Street Railways are Located" made to the General Court of 1916). While such requirements are contained in many of the original grants under which the Bay State company operates, there is no evidence which would lead the Commission to believe that more than half of the paving is subject to such conditions. It is, however, true that, apart from such requirements, it is necessary for the company when it reconstructs or renews track to take up and relay the paving. Taking this fact into consideration, while the depreciation allowance estimated for this item should be reduced, no large reduction can reasonably be made.

A similar criticism may be made of the allowance in the case of overhead charges. Clearly such charges are not depreciable unless they must be incurred again at the time when the property is replaced, and for this reason Mr. Feustel himself eliminated Organization expenses and Taxes during construction. If sufficient provision is made for depreciation, however, Interest during construction may be avoided in connection with replacements, and it seems unlikely that Engineering and the remaining overhead expenses should average so high as in the case of original construction. Taking all the facts into consideration, the Commission is of the opinion that the annual depreciation allowance should be decreased by about \$50,000, because of over-estimate in the case of paving and overhead charges, apart from any decrease on account of the reduction in unit prices and in the total amount of overhead charges.

It remains to adjust the estimate of the yearly provision for depreciation in accordance with these criticisms and to conform to the deductions already made in determining the investment to be used as a basis in fixing rates for passenger service within Massachusetts. To make the adjustment with entire accuracy would require extensive computation, but a rough approximation is sufficient for present purposes. The engineers' estimate of the original cost of the Massachusetts property, eliminating working capital, is \$41,563,308. No depreciation allowance, however, was figured in the case of the property leased to the Boston Elevated Railway Company, or in the case of the unused property. Deducting the estimated cost of this property (\$1,243,384), the total is \$40,319,924. In determining the amount to be used as a basis for rate-making in this case, the Commission has deducted, aside from working capital, \$3,600,343 from the en-

engineers' estimate for the reasons already given; but in this amount, also, is included the cost of the property leased to the Boston Elevated and the unused property. Eliminating these, the deduction is \$2,356,960. This amount is 5.85 per cent of the engineers' estimate of \$40,319,924. It may therefore be assumed that the necessary provision for depreciation, for the purposes of this case, should be 5.85 per cent less than the amount which would be necessary if no deductions had been made in the property account. The total estimate for depreciation upon the basis adopted above, apart from such deductions but allowing for the \$50,000 reduction on account of paving and overhead charges, would be \$1,109,266. Reducing this by 5.85 per cent, the total annual provision for depreciation becomes \$1,044,374. Deducting the sum (\$347,471) found to have been spent in 1914 for depreciation, the additional amount which should have been appropriated in that year becomes \$696,903, instead of the \$1,063,145 estimated by the engineers.

#### *Maintenance Expenditures.*

In determining the reasonable expenditures for maintenance, as distinguished from depreciation, the company has merely used the actual figures for the 1914 year, after deducting the sum (\$347,471) which the engineers thought, under their theory of computing depreciation, would have been charged to the latter account. This left \$1,205,322 as the purely maintenance expense. Inasmuch as the estimate for depreciation covered the expense of all renewals except those of a very minor character, this sum seems high. This was, indeed, admitted by Mr. Feustel (Record, p. 4621). It makes maintenance alone amount to 13.25 per cent of operating revenue, or 4.15 cents per car mile.

The annual expenditures of the Bay State company per car mile since 1901 for maintenance and for maintenance plus all replacements charged to profit and loss have been as follows (see Exhibit 60): —

YEAR.	Maintenance (Cents).	Maintenance plus Replacements (Cents).
1901, . . . . .	2.79	4.59
1902, . . . . .	2.87	3.36
1903, . . . . .	3.15	3.73
1904, . . . . .	4.06	5.10
1905, . . . . .	3.79	5.00
1906, . . . . .	4.25	4.94
1907, . . . . .	3.88	4.26
1908, . . . . .	4.17	4.54
1909, . . . . .	4.59	4.95
1910, . . . . .	4.99	5.24
1911, . . . . .	4.75	5.34
1912, . . . . .	5.08	6.30
1913, . . . . .	5.38	6.03
1914, . . . . .	5.31	5.55
1915, . . . . .	6.20	6.89

During the trial of the case, the company was unable to supply the remonstrants with detailed information as to the nature of the maintenance expenditures in the 1914 year which would make it possible for them to determine how far the engineers' segregation of depreciation charges was correct, stating that a prolonged audit of the records would be necessary for this purpose. The nearest approach was information furnished by its treasurer, showing that, of a total of \$1,638,290 spent for maintenance upon the entire system, both within and without Massachusetts, labor accounted for \$866,471 and materials for \$641,162, while the remaining \$130,657 could not be apportioned between the two.

Mr. Adams, the expert for the remonstrants, estimated that 2 cents per car mile ought to be sufficient for maintenance alone, as distinguished from the renewals covered by the depreciation allowance. He based his estimate in part upon computations derived from the figures submitted by the treasurer and in part upon the past records of railways which are now a part of the Bay State system. The figure is speculative, however, and no very definite or tangible evidence was furnished to support it.

Since the hearings closed, the Commission has secured through its accountants further information from the company as to the

exact nature of the expenditures in question. This information leads it to believe that, while this item of expense is undoubtedly high, the excess is probably not due in any large measure to the inclusion of renewals which should, as the line has been drawn, have been classed as depreciation charges. Rather it is due to the fact that the company has so many antiquated cars which, with their electrical equipment, are in continual need of repair, a situation which is aggravated by neglect of paint, poor track conditions at many points, an inadequate feeder system and inefficient methods of handling the work. This state of affairs will be discussed at greater length under the heading, "Efficiency of Operation."

### THE FAIR RETURN.

The company claims that it is justly entitled to a return of 7 per cent upon the full amount of capital found by the Commission to have been "honestly and prudently invested." Is this a fair and reasonable rate?

The basis for the claim, as stated in the company's brief (p. 84), is as follows: —

The question before the Commission is what rewards and what general treatment will induce private capital to invest in the Company, and in deciding this economic question the Commission should bear in mind that, though it can temporarily decide the fate of capital already in, it cannot induce new capital to enter the enterprise unless the rewards established are sufficient in the judgment of the investor to warrant his taking the risks and hazards of the business, and if the treatment of the old capital does not suit him he will refuse to enter at all. There must be, in the long run, not only an adequate annual return to the investor, but a certain margin above the return, to tide the Company over bad years and to protect against casualties, a surplus for contingencies and normal hazards.

This seems to mean, although a different interpretation is possible, that the measure of a fair return is the necessary inducement to capital to invest, not in a fairly capitalized street railway system in Massachusetts created with reasonably good judgment and reasonably well managed in the past, but in the Bay State company with its existing capitalization and its actual history. Thus, at the outset, is raised one of the most serious and difficult questions with which public regulation is called upon to deal.

It is true that public utility companies in a growing community constantly require new money and that, under the system



of private ownership, conditions must be made attractive enough so that private capital will freely enter the field. It is also true that it would be gross folly for the Commonwealth to furnish investors reasons for fearing that they are likely to be prevented, by any action of public authorities, from securing a return commensurate with the risk upon investments honestly and prudently made in public utility enterprises which are reasonably well managed, or an even larger return where the management is more than ordinarily efficient. But we find it impossible to believe that it is necessary, in order to attract the needed capital, entirely to overlook or condone mismanagement or errors of the past. It is not true, in our judgment, that a system of public utility regulation is wholly inexpedient and impracticable in which, to use the words of the Middlesex and Boston case, a premium is put upon good management but "discouraging condemnation is visited upon bad management" and in which, "if there is mismanagement causing loss, such loss must be charged against the stockholders legally responsible for the mismanagement."

If it were true, it would follow that the system of private ownership and public regulation of public utility companies is a failure. The risk of poor judgment and bad management is, at least, an avoidable risk and far less serious under modern methods of regulation than it has been in the past. Investors cannot reasonably claim protection against results for which they or their representatives may fairly be held responsible, nor are we of the opinion that they really make any such claim. The test of a fair return in the present instance should, in the opinion of the Commission, be the necessary inducement to capital to invest in a Massachusetts street railway property of the same general characteristics as the Bay State system, created with reasonably good judgment, and reasonably well managed both at present and in the past. It is a test which assumes no standards of infallibility or perfection and which is to be applied in a spirit of fairness and moderation. If, in any instance, its application should make it difficult for a company to issue new common stock it is sufficient to point out that the law permits the issue of preferred stocks of various classes and descriptions and that it is quite possible in this way to protect new investors against the consequences of anything that has occurred in the past.

The 7 per cent return urged by the company is based upon the total investment, regardless of whether it is represented by bonds or by stock. The total charge upon the company in 1914 on



account of its funded debt, including both interest and amortization of discount, amounted to about 4.45 per cent upon the par value of the bonds and coupon notes outstanding. This par value, however, is greater than the underlying investment, since many of the bonds were issued at a discount. Deducting the discount carried as an asset on June 30, 1914, the total charge amounted to about 4.7 per cent. Assuming the whole investment to be represented half by bonds and half by stock, which is the approximate ratio in the Bay State capitalization, and assuming the above annual charge in the case of the bonds, a 7 per cent return upon the entire amount would thus, in the case of a system not over-capitalized, leave 9.3 per cent available for the payment of dividends upon stock. Assuming a certain proportion of 6 per cent preferred stock, the return upon the common shares would be even greater. Are such earnings upon common stock necessary for the attraction of capital?

Past experience with public utility companies in Massachusetts gives little ground for such a claim. Stock of fairly capitalized and well managed properties, even including street railway companies, has frequently been issued, taking premiums into consideration, upon better than a 6 per cent basis. There can be no doubt, however, that street railway investments are now less favorably viewed than once was the case. In particular, the advent of jitneys, motor busses and even privately owned automobiles has introduced a new element of competition and a consequent risk which is deserving of serious consideration. It is also true that our taxation laws as they have existed in the past have tended to create a market for securities of Massachusetts public service corporations, among trustees and similar investors, which the recent change in the income tax law may possibly affect.

Testimony from New York bankers was introduced by the company to the effect that a 7 per cent return upon the investment is necessary, — not, however, that dividends in excess of 7 per cent may be paid but in order that there may be a margin of safety and an accumulated surplus to guard against possible contingencies. But this testimony must be viewed in the light of the fact that the company is asking, not only for a 7 per cent return, but for funds sufficient to make a provision for depreciation such as no street railway in Massachusetts, at least, has ever hitherto made. The general practice in declaring dividends in the past has clearly been to trust largely to the future so far as depreciation was concerned, and an important element of risk

has therefore been present which will be avoided if the policy is changed in the manner now indicated. This is illustrated by the following testimony of Mr. Feustel (Record, p. 2179): —

Commissioner EASTMAN. Do you really believe that a company, which was setting aside such a depreciation fund as you suggest, would need also a further surplus after the payment of dividends in order to sustain its credit?

The WITNESS. Personally, it would seem to me that the amount we have asked for, for depreciation, should be sufficient to keep the property up in reasonably good shape and be the help probably needed to keep the credit of the company up in good shape.

Commissioner EASTMAN. If the company had started in on your plan at the start, it would now have a very large accumulated fund, would it not?

The WITNESS. It would; it would have an accumulated fund.

Commissioner EASTMAN. About \$12,000,000?

The WITNESS. Yes, I would think so; either in cash or in extensions.

Commissioner EASTMAN. And that would be a pretty good support for the credit?

The WITNESS. A bully support.

In other words, the provision for depreciation which is allowed and the fair rate of return must be considered together. Under these circumstances the Commission is of the opinion that a 7 per cent return upon the entire investment is larger than may reasonably be demanded and that 6 per cent should be ample. Assuming a charge of 4.7 per cent for money borrowed, this will leave 7.3 per cent for the portion of the investment represented by capital stock. In fixing this rate we must not be understood as ruling that a street railway company which finds it possible to declare dividends in excess of 7 per cent per annum may reasonably be required to *reduce* its charges. Each case must be judged upon its own merits. The finding means merely that this particular company ought not to be allowed to *increase* its rates so long as it is able to earn the return specified, after making due provision for depreciation, upon the present amount of capital honestly and prudently invested. Due consideration has been given to the fact that the company, by the policy which it pursued with respect to dividends in the past, has lost the right to claim an enhanced return which it might have had if a more conservative policy had been pursued. The same may be said of the treatment of premiums in the past. The rate is also to be regarded as an average figure for the entire system. There are

lines where the risk is such that a higher return would be reasonable, provided it could be earned and, vice versa, there are other sections where the rate might well be less.

#### DO THE 1914 FIGURES AFFORD A FAIR TEST?

The evidence submitted by the company in support of its claims is based upon the results from operation during the year ended June 30, 1914, and throughout the trial of the case, with the exception noted below, it consistently relied upon these statistics. Disregarding the question of operating efficiency, which will be considered later, does this particular year afford a fair test of present revenue needs?

The returns of the company for the year ended June 30, 1916, which have recently been filed with the Commission, show the following changes, as compared with the figures for the year ended June 30, 1914:—

	Increase.
Operating revenues, . . . . .	\$341,267 23
Operating expenses:	
Maintenance of way and structures, . . . . .	488,184 76
Maintenance of equipment, . . . . .	198,041 01
Power, . . . . .	39,233 73
Conducting transportation, . . . . .	385,785 59
Traffic, . . . . .	1,826 81 <sup>1</sup>
General and miscellaneous, . . . . .	91,100 78
<hr/>	
Total, . . . . .	\$1,200,519 06

These results for the fiscal year which has just closed were not made a part of the formal record of the case and no evidence was submitted by the company indicating that the figures for the 1914 year did not afford a fair test of present needs except an exhibit (Exhibit 66) showing that, as a result of the award of the Board of Arbitration dated June 21, 1915, wages in the 1916 year were about \$342,000 higher than would otherwise have been the case.

So far as the other increases in expense shown by the above table are concerned, while they were in no way analyzed during the trial of the case and no evidence was introduced in regard to them, it may fairly be assumed from such knowledge as the Commission has that they represent in large part a more liberal

<sup>1</sup> Decrease.

policy with respect to renewals and replacements, the setting up of a depreciation reserve on equipment and the increased expense necessitated by the preparation and presentation of the pending case. In view of the lack of evidence in regard to these other additions to expense and the fact that the company in no way relied upon them, the Commission feels that they are entitled to relatively little consideration. The results of the year selected by the company may, we think, be regarded in general as a fair test of present needs.

### SUMMARY.

Summing up the result of the above consideration of the company's investment and of its financial and operating statistics and applying these results to the skeleton statement submitted by the company to show its revenue needs and given in full above, it appears —

(1) That the present amount of capital honestly and prudently invested to be used as a basis in computing fair and reasonable passenger fares within Massachusetts should be reduced from the \$42,987,405 estimated by the engineers to \$39,104,340.

(2) That the amount needed for depreciation in addition to present maintenance charges should be reduced from the \$1,063,145 estimated by the engineers to about \$696,903.

(3) That the operating revenues should be decreased by \$37,700, received as rental from the Boston Elevated Railway Company and by \$1,568, income from the property unused for street railway purposes, a total reduction of \$39,268.

Making these corrections, the figures show that the net earnings applicable to dividends amounted, during the year, to \$1,757,444 or approximately  $4\frac{1}{2}$  per cent upon the amount of investment to be used as the basis in determining reasonable fares. The deficiency below the 6 per cent return found to be reasonable amounted to \$588,816.

### SHOULD THE SYSTEM BE REGARDED AS A UNIT?

For the purposes of this case, is it reasonable to regard this system, which spreads all over eastern Massachusetts with lines running into New Hampshire and Rhode Island, as a unit? What consideration, if any, should be given to the differing conditions which prevail in the various parts of the wide ter-



ritory which it serves? The company's position is in the nature of a compromise. It makes no attempt to apply a uniform rate of fare over the entire system, but recognizes the fact that it costs less to carry a passenger a given distance where traffic is dense than where it is light. In its proposed schedule the zones are shorter and the average rate per mile higher on the lines of light traffic, while in most of the cities even the unit fare is made lower by offering nine rides for fifty cents. But in thus considering cost of service the company stops short at a certain point and takes, in effect, this position: If we cannot secure enough revenue in our lean territory to meet the cost of service, we are entitled to call upon our richer territory for help and to charge enough more in the latter to make good the loss in the former.

There is nothing new in this doctrine, and this Commission, indeed, took substantially the same position in the Middlesex and Boston case (2d Rep. P. S. C., pp. 112-117). It will generally be conceded that no public service corporation can expect to make money from all the service which the larger public interest may require it to provide and that any burden caused by this fact the community as a whole must normally expect to bear. But how far can this doctrine fairly be extended? There is little community of interest between Nashua and Newport, or between Lowell and Fall River, or, even, to take two points which are relatively near, between Lynn and Quincy. Is there any good reason why the people of Fall River should be called upon to pay higher fares because some line in Ipswich does not pay, or why the people of Lawrence should be charged more because the results in Middleborough are unsatisfactory?

It has been intimated that, inasmuch as the people of the various communities now served by the Bay State company did not oppose the consolidations which resulted in the present huge system, they sanctioned the creation of the unit and must abide by the natural results. An examination of the statutes under which the consolidations were effected, however, discredits this reasoning. Chapter 269 of the Acts of 1897 empowered one connecting street railway company to purchase the franchises and property of or consolidate with another upon terms approved by the Board of Railroad Commissioners, but contained this important proviso: —

*Provided, also, that the facilities for travel on each of the railways of the said companies shall not be diminished or the rates of fare increased.*

In the Revised Laws of 1902, this proviso was changed to read as follows (chapter 112, section 86): —

. . . if the facilities for travel on the railway of each of said companies shall not be thereby diminished or the rates of fare increased.

This wording was left unchanged in the codification of 1906 (St. 1906, c. 463, Pt. III, § 52). In view of these provisos, the communities might well have felt that their interests were reasonably safeguarded and that the consolidations at least involved no pooling of destinies which could react upon their own fares and service. The attitude of the Board of Railroad Commissioners seems to have been much the same. If that Board had felt that by tying together a number of companies, some prosperous and some impecunious, the promoters of the enterprise could expect to levy an additional tax upon the patrons of the good properties in order to make up for losses upon the poor lines, it would have been its duty to have scrutinized the terms of the transaction and the relative values of the properties with great care. So long, however, as the limits set by the statutes were not exceeded and no increase in outstanding capitalization was proposed, and so long as certain immediate benefits were promised, the Board seems to have been willing to rely upon the provisos and permit the union to take place. In other words, it must have argued that if, knowing that they could not expect to increase fares by reason of the consolidation, the promoters of the enterprise had faith in the economies which might be realized and wished to take the risk, they were at liberty to do so.

The Public Service Commission act (St. 1913, c. 784) probably gives the Commission power to deal with the situation irrespective of the provisions of the earlier statutes; but the circumstances under which the consolidations were effected have an important bearing in deciding what is just and reasonable at the present time. This is also true of the events by which they were preceded. The evidence shows that the union of all these companies under one common control and management was by no means a matured and carefully considered project. The plan was hastily devised, in the days when trust formation was at its height, by two bankers but one of whom had had street railway experience. No particular thought seems to have been given to determining how large and heterogeneous a system could be efficiently handled. At first, the scheme embraced

only companies north of Boston, but in order to secure certain properties it became necessary to purchase others, controlled by the same interests, in the southern district (Record, p. 4045). The result was a miscellaneous aggregation of properties, city and country, run-down and well-maintained, "speculative" and prosperous, scattered throughout eastern Massachusetts and extending into New Hampshire and Rhode Island. From the promotion of the combination the bankers received a generous profit (Record, pp. 3959-3969), a profit, however, which was furnished by the holding company and not by the underlying street railway properties.

The whole plan of achieving common control of these properties was largely carried into execution less than six months after it first was broached (Record, p. 3915) and it does not appear that it was based upon any careful study and investigation. Questions of management were apparently left for later consideration. The underlying thought seems to have been the one so prevalent at the time, that combination would inevitably result in marked economies of administration and operation. Later events proved that if there had been less haste many of the properties might ultimately have been acquired at far less cost, and the reports of the Board of Railroad Commissioners and the testimony of Mr. Bishop indicate that this might have been apparent at the time.

In view of the provisions of the statutes under which the consolidations were effected, in view of the circumstances which led up to them, and in view of the little community of interest between certain parts of the system, it would, in the judgment of the Commission, be an injustice to the many populous communities which the Bay State company serves to regard its system wholly as a unit for rate-making purposes. In saying this we do not mean that an attempt should be made to recreate conditions which would have prevailed if no consolidations had taken place; nor do we mean that every line which the company operates should be required to pay its own way. It may be conceded that the communities and localities in which the company earns the major part of its divisible income must expect in some measure to bear the burden of tributary lines which cannot support themselves; but this does not go to the length of admitting that the full burden of carrying the "speculative" properties in sparsely settled territory, which were made a part of the system in the manner above described, must be borne by the better paying communities. The company, in some

measure at least, must bear the burden of the conditions which its principal stockholder, the Massachusetts Electric Companies, has been responsible for creating.

The remonstrants asked the Commission, in this connection, to make the following ruling: —

If the Commission find that any increase in rates of fare is necessary in order for the Company to obtain a reasonable compensation for the service rendered, then that the Commission find and report to what extent, if any, such increase is made necessary by reason of any consolidation or consolidations of or among the street railway companies now constituting the Bay State Street Railway Company.

This request, we think, is sufficiently met by what has been stated above and no more definite ruling is necessary.

#### RESULTS BY SECTIONS.

The lines of the system within Massachusetts are divided into 95 different operating routes. After estimating the original cost of the entire property, the engineers employed by the company made an elaborate analysis of these cost figures and of the operating statistics with a view to determining the results from operation upon each one of these routes. Since much investment is used in common, including power, shops, etc. and even road-bed and track, the apportionment of investment and of revenues and expenses necessitated many somewhat arbitrary assumptions. The following brief extracts from the report of the engineers will illustrate these assumptions: —

. . . Thus if two or more routes used a certain portion of track between two branch-offs, the car miles operated by each route over the particular stretch of track in question were determined; and the value of the track and roadway and trolley overhead were apportioned to the routes on the basis of the ratio of the car miles for each route to the total car miles for that section of track.

The entire system was divided into power districts, showing the normal limits served by each power station and substation. Taking into account the weight of cars and the character of the electrical equipment, the average kilowatt hours of energy used per car mile was determined for each route or portion of a route being served within a power district. This consumption of energy per car mile multiplied by the total car miles operated in that district gave the total kilowatt hours used. The total value of the power stations, substations and transmission lines within the



district was then apportioned to the routes according to the amount of power used by each route. The feeder system was apportioned on the same basis except that the element of average distance of routes from the power stations was also considered.

An examination and study of the accounts relating to roadway and track definitely showed that no single unit could be used as a basis for apportionment. Some of the expenses were found to vary with the miles of track, some with the volume of traffic, and others, in a proportionate measure, with both miles of track and volume of traffic; therefore two units, the track mile and the car mile, were selected for the apportionment of these expenses.

The power system of the Company has been divided into districts and the cost determined for each district after a careful survey of the territory included and a study of all the attendant conditions.

For apportionment two units were developed with which the expenses seemed to vary most closely and have been applied to the feeder, maintenance and generation expenses; they have for convenience been called weighted feeder car mile and weighted car mile and have been made up after considering all of the above factors and their effect upon the individual routes.

A wide divergence of opinion as to the proper method of making such an apportionment is, of course, possible; but upon the whole the engineers seem to have done the work carefully and to have made reasonable assumptions. At all events, for present purposes no detailed analysis of their apportionment is necessary. In arriving at their results, they used the actual revenues, expenses and taxes for the year ended June 30, 1914, and included the additional allowance estimated by them to have been necessary for depreciation. Widely varying conditions were disclosed. Some of the routes were found to be earning even more than 7 per cent upon the investment, while others were showing large deficits. To illustrate, the following routes were earning more than 6 per cent (Exhibit 34): —

ROUTE.	Investment.	Surplus on Investment (Per Cent).
Boston-Revere Beach (Beach Street), . . . . .	\$550,750	6.69
Lynn City, . . . . .	1,668,713	6.08
Boston-Swampscott-Marblehead, . . . . .	1,208,953	12.82
Stoneham Square-Salem, . . . . .	500,447	12.75
Beverly-Boston, . . . . .	828,929	7.06
Chelmsford Center-Lowell, . . . . .	233,852	6.97
Lowell-Lawrence-Haverhill, . . . . .	796,421	7.10
Lawrence City, . . . . .	1,418,210	6.85
Brockton City, . . . . .	848,237	7.46
Brockton-Whitman, . . . . .	352,247	6.04
Campello-Mattapan, . . . . .	745,108	9.38
Fall River-Rhode Island State Line, . . . . .	106,283	16.12

On the other hand, the following routes were showing deficits greater than 6 per cent (Exhibit 34): —

ROUTE.	Investment.	Deficit on Investment (Per Cent).
Park Avenue-Boston, . . . . .	\$85,466	6.52
Boston-Webster Avenue, . . . . .	89,227	6.92
Billerica-Wilmington, . . . . .	88,341	8.58
North Woburn-Wilmington, . . . . .	113,255	10.70
Newburyport-Ipswich, . . . . .	398,953	7.53
North Reading Branch, . . . . .	46,870	15.25
Wakefield Rifle Range, . . . . .	4,558	9.10
Fort Point, . . . . .	35,651	7.30
Mann's Corner-Assinippi, . . . . .	27,382	6.90
Lakeville-Elliott's Corner, . . . . .	139,295	8.43

The other routes showed results varying widely between these extremes.

These figures, however, were not satisfactory to the remonstrants, since they did not show the results from operation within any particular locality. At their request, therefore, the

territory served was divided into 15 districts, regarded, in general, as having some community of interest and the engineers regrouped their figures to show, roughly, the results in these separate districts. The earning percentages thus derived were as follows (Exhibits 46 and 47):—

DISTRICT.	Surplus on Investment (Per Cent).
Chelsea-Revere, . . . . .	3.49
Lynn, . . . . .	6.95
Salem, . . . . .	3.65
Gloucester, . . . . .	3.19 <sup>1</sup>
Reading-Woburn, . . . . .	.51 <sup>1</sup>
Lowell, . . . . .	2.86
Lawrence, . . . . .	5.46
Haverhill, . . . . .	2.02
Newburyport, . . . . .	6.76 <sup>1</sup>
Hyde Park, . . . . .	4.28
Quincy, . . . . .	1.27
Brockton, . . . . .	4.15
Taunton, . . . . .	3.08
Fall River, . . . . .	5.91
New Bedford, . . . . .	4.56 <sup>1</sup>

<sup>1</sup> Deficit.

The names given to these districts indicate merely the community which may, perhaps, be regarded as the center.

In considering all the above figures, it should clearly be understood that they are based upon the engineers' estimates of investment and of depreciation allowance. Using the amount fixed by the Commission as the present basis for passenger fares and the corresponding depreciation allowance, however, the adjusted results, as nearly as we can estimate them, would be as follows:—

DISTRICT.	Surplus on Investment (Per Cent).
Chelsea-Revere, . . . . .	4.65
Lynn, . . . . .	8.35
Salem, . . . . .	4.80
Gloucester, . . . . .	2.46 <sup>1</sup>
Reading-Woburn, . . . . .	.38
Lowell, . . . . .	3.98
Lawrence, . . . . .	6.72
Haverhill, . . . . .	3.09
Newburyport, . . . . .	6.26 <sup>1</sup>
Hyde Park, . . . . .	5.50
Quincy, . . . . .	2.28
Brockton, . . . . .	5.33
Taunton, . . . . .	4.18
Fall River, . . . . .	7.19
New Bedford, . . . . .	3.93 <sup>1</sup>

<sup>1</sup> Deficit.

### EFFICIENCY OF OPERATION.

From the outset, the Commission has regarded the question of efficiency of management and operation as of great importance in this case. An increase in fares, particularly an increase in the five-cent unit, is an expedient of by no means certain value. A street railway company at the present time is, to a larger degree than ever before, a competitive enterprise. It must meet the competition of other forms of transportation. There is no better illustration of this fact than the Bay State company itself. Upon its so-called suburban and interurban lines it has always been obliged to meet the competition of the steam railroads, but now it is faced in the cities with the "jitney" and on its longer routes with the motor bus, a competitor rendered especially formidable by the excellent roads within its territory. This new competition, the president of the company estimates, has been responsible for a falling off in revenue of from \$300,000 to \$350,000 a year (Record, p. 4866).

The company itself concedes that the increase in fares will result in loss of traffic. Although the increase in the unit from five cents to six cents would in itself produce, theoretically, a 20 per cent gain in revenue and although the new schedule, in



addition, raises the unit from five cents to eight cents in some cases, introduces new zones, abolishes existing reduced fare tickets and restricts transfer privileges, the total estimated increase in revenue is but 14.5 per cent, and little confidence is expressed in even this figure. To quote Mr. Feustel (Record, pp. 4583, 4584):—

It is just frankly a rough estimate, based on what the experience of those companies was that had raised fares here in the East. As a matter of fact, so far as the city lines are concerned, the traffic loss is greater than we have assumed on some of the lines. They have eventually come back, but they have had a pretty heavy traffic loss. It does not look as though we might get as much as we had hoped for under this estimated increase by the experience of some of those companies, I should judge.

Without undertaking to analyze the figures in any detail, it is quite clear that the results upon street railways in Massachusetts which have increased the unit of fare from five cents to six cents have been disappointing. It is impossible to say that no advantage has resulted, for business conditions in 1914 and 1915 make it difficult to determine the precise effect. There have been increases in gross revenue and it is quite possible that these may, as the managers of the roads seem to think, have been larger than otherwise would have accrued; but certainly the net results have not been gratifying. The following is perhaps the best illustration that can be given. In November, 1914, the Middlesex and Boston Street Railway Company was allowed to increase the unit fare in its Newton division from five cents to six cents (with a ticket concession). The unit fare in its other divisions was already six cents. Under the six-cent fare it carried, in the Newton division, in the months from November, 1915, to June, 1916, inclusive, 2.84 per cent less passengers than it carried under the five-cent fare in the same period in 1913-1914; but its passenger revenue increased 5.16 per cent. On the other hand, the Bay State Street Railway Company carried upon its whole system 5.02 per cent more passengers in the former period than it did in the latter, while its revenues increased 4.82 per cent. It will be seen that the net results were substantially the same, although the Middlesex and Boston made slightly the better showing.

The six-cent unit is admittedly awkward and unpopular, its psychological effect upon the person who pays it being worse, on the whole, than its financial effect. Moreover, conditions in

certain parts of the Bay State territory seem peculiarly unfavorable to the increase. The general manager of the company has testified that under the proposed schedule fares between given points, particularly in the Metropolitan district, would in some cases be larger than even the single ticket fares upon the steam roads while they would quite generally be about twice as high as the commutation rates (Record, p. 4788). This was confirmed by statistics prepared by the Rate and Tariff Department of the Commission (Exhibit 88). In certain parts of the territory (Lynn-Salem), motor bus competition presented itself before the "jitney" was heard of. Furthermore, the centers of larger population are, in general, mill and factory cities, densely settled, with the average haul comparatively short. In such localities walking is a form of competition not to be ignored. There can be little doubt that, if the fare should be increased, many more mill and factory hands would walk to and from their work, an effect which would be especially marked in the case of short-haul riders, whose patronage street railway companies are particularly eager to secure.

The difficulties which beset street railway companies at the present time because of competing forms of transportation are not peculiar to Massachusetts but are encountered in all parts of the country. The policy of meeting the situation by increasing the unit of fare to six cents, however, *is* peculiar to Massachusetts. So far as we are informed, no attempt has been made elsewhere to increase the five-cent unit, in cities at least, although in many cases it has been reduced by ticket concessions. The tendency in other parts of the country, in the main, is clearly to meet the new difficulties as a merchant in an ordinary competitive enterprise would seek to meet them, — namely, by inviting additional traffic through faster, better or generally more attractive service or by decreasing expense through improved operating methods. The progress which has been made within recent years in both of these directions has been encouraging.

It is for these reasons that the Commission has felt that the question of efficiency of management and operation is one of great importance. While there is, no doubt, a reasonable prospect that the increase in fares proposed would bring a gain in revenue, there are so many elements of uncertainty that the policy must be regarded in the main as a last resort. If the net income could be increased in some other way it would be better,

not only for the public, but for the company itself. The Commission, therefore, employed Mr. Bion J. Arnold of Chicago to investigate the Bay State system with a view to determining to what extent improvements and economies in present methods of operation are possible. Briefly stated, he was employed to answer the following questions: —

(1) Whether or not and to what extent the Bay State company, without changes in its present property, can decrease operating expenses.

(2) Whether or not and to what extent the Bay State company by investments in new property can decrease operating expenses and increase net income.

(3) Whether or not and to what extent the Bay State company by new and improved methods of operation can increase its revenues, apart from an increase in rates of fare.

Later, certain of the remonstrants employed Mr. Peter Witt, former street railroad commissioner of the city of Cleveland, to make a study of conditions in Lynn and its vicinity with the same end in view. The somewhat voluminous evidence upon this question of efficiency of operation may be considered briefly under the following heads: —

### *Car Operation.*

In the year ended June 30, 1914, the Bay State company paid motormen and conductors \$1,984,450, by far its greatest single item of operating expense and an item which is to a large extent dependent upon the number of car hours run. Obviously, economy demands the largest possible car mileage in proportion to car hours, and this makes the speed at which cars are operated very important. This fact is generally recognized by street railway managers at the present time and upon well operated roads every effort is made to increase the average speed. The better the speed, also, as a rule, the greater the traffic.

In the recent wage arbitration case the general manager of the Bay State company testified that in the "last ten or eleven years" there have been little, if any, reductions in running time, a statement which he confirmed in these proceedings (Record, p. 4812). An exhibit was also filed by the company in that case and introduced in this, showing that the average speed on the Bay State system in 1914 was lower than on other large Massachusetts properties (Exhibit 92), as follows: —

COMPANY.	Miles per Hour.
Boston and Worcester, . . . . .	16.82
Berkshire, . . . . .	11.61
Massachusetts Northeastern, . . . . .	11.55
Boston Elevated (excluding rapid transit lines), . . . . .	10.05
Springfield, . . . . .	9.86
Holyoke, . . . . .	9.76
Middlesex and Boston, . . . . .	9.59
Worcester Consolidated, . . . . .	9.45
Fitchburg and Leominster, . . . . .	9.18
Union' (New Bedford), . . . . .	8.48
Bay State, . . . . .	8.35

Mr. Arnold states that the "average scheduled speed of surface car operation in the city of Chicago is over nine miles per hour," and the following is from the 1915 annual report of the Cleveland Railway Company (Exhibit 70): —

The average speed of our cars in 1911 was 9.6 miles in the base-table hours, 9.6 miles in the rush hours and 9.6 miles at night. In 1915 the average speed was 11 miles in the base-table hours, 10.2 miles in the rush hours and 11.5 miles at night. This is an increase of nearly 15 per cent.

Whether these Cleveland figures included lay-overs does not appear, but the average speed on the Bay State system in 1914, eliminating lay-overs, was but 9.43 miles per hour (Exhibit 59). The comparison of the Boston, Chicago and Cleveland systems is especially striking since the Bay State operates many so-called interurban lines where a comparatively high speed might be expected.

Mr. Witt considers the Bay State speed "shameful" (Record, p. 4395). Mr. Feustel has the impression that the "lines could be speeded up," that the "average speed of miles per hour that could be obtained is greater than what they are obtaining" (Record, p. 1600). Mr. Arnold summed up his conclusions, which were supported by a mass of data, as follows (Exhibit 62, p. 85): —

The schedule speed of cars is too low, both on the city and the interurban lines. This results from a variety of causes, including an unreasonably large number of indicated stops, poor voltage on interurban lines due to lack of feeders, slow loading and unloading of cars, slow acceleration and



braking, etc. With these conditions remedied, it is estimated that a saving of between \$158,000 and \$234,000 per year could be made by increased speed.

In reply to these suggestions the president of the company, while agreeing that the speed might be improved, especially if the number of stopping places were reduced, expressed a doubt whether any appreciable saving in expense could be effected. He laid special stress upon the fact that the Bay State system has so much single track mileage. To quote from his testimony (Record, p. 4879): —

But, to illustrate, a single track line that has, say, hourly time. Not hourly time, but the run is made in an hour. If we could save ten per cent there and get that down to 50 minutes, it means a lay-over at the end of the line. It is not possible to adjust that. That does not mean that there is not a single case where you cannot make an improvement. I say, yes, you can make an improvement, but to an appreciable extent, which you would expect from Mr. Arnold's report, it cannot be done.

Q. The difficulty, if I understand you right, is that if you save the time you cannot make valuable use of it. A. That is the point, sir.

He further testified that the company has a special time-table department for the very purpose of securing efficiency in car operation (Record, p. 5082).

While it is true that single track makes the task of increasing speed more difficult, Mr. Arnold's estimate was made with this very difficulty in mind. His conclusions were not based upon a mere general opinion that the cars could be made to run faster but upon test studies, in detail, of operation and actual riding in the cities of Lynn and Lowell and upon typical interurban lines. In making these studies no possible increase in speed upon any route was taken into consideration without reason to believe that the reduction in time could be utilized, through the re-routing of cars, if necessary, to save car hours. As a matter of fact Mr. Arnold's estimates were very conservative, involving an increase in the present average speed of 7.27 miles per hour on the city lines to a minimum of 7.9 miles or a maximum of 8.4 miles per hour, and a corresponding increase in the present average of 8.8 miles in the interurban service to a minimum of 9.6 or a maximum of 9.9 miles per hour.

In view of what other roads in other parts of the country and in this state are doing it is difficult to believe that these very moderate increases are impossible to effect. The following illustration, while of minor consequence, is significant. The

Bay State and the Massachusetts Northeastern companies each have a line between Haverhill and Lawrence. The Bay State line is 9 miles long and the running time is 55 minutes. The line of the Massachusetts Northeastern, on the other hand, is 11 miles long while the running time is but 45 minutes (Record, p. 2817).

As for the time-table department, the scope of its present duties was described by the general manager of the company as follows (Record, pp. 4733, 4734): —

Q. If you will stop there just a minute. Mr. Richey you say is in charge of the time-table department. Does he have anything to do or say about how cars shall operate in North Saugus? A. Not how cars will operate.

Q. I don't know just what you mean. You do not mean that he has to read the proof of time-tables, I am sure. A. No, sir. I think that you do not grasp the difference there, Mr. Wadleigh.

Q. No, sir, I am not grasping the difference; but I am trying to. A. I will try to help you. The local superintendent would say how or under what headway he would route cars. That is his responsibility. He is supreme in the matter of local service. He is not interfered with in that. He puts up to the time-table department what he wants in the way of a table, and in so far as how the cars will be operated or how a route will be run is concerned, that is a matter for the local superintendent. Mr. Richey would simply sub-divide that number of trips into what we know as an operating time-table, arranging the runs in accordance with our agreement with the men, covering the period of operation, consolidating the runs into as nearly full days or otherwise as our long working agreement with the union would require. That detail is imposed on him.

Q. That is the detail of working out the actual working schedule? A. The working out of the actual working schedule.

Q. In the way of operation? A. Yes, sir.

Q. The local superintendent, you say, is all powerful in the operation? A. In the operation, yes, sir.

Q. He has not all power, wholly, of course, because he is regulated in the service largely by the equipment, and as to the equipment he has not all power? A. It is all in his hands. I am speaking in respect to the operation and the service to be rendered. It is entirely in their hands.

Q. Does he have power, for instance, to determine the number of white post stops? A. Yes, sir.

Q. Absolute, final power? A. Yes, sir.

Q. So that if down in Lynn, or in Brockton or Fall River, the people locally think it advisable to have fewer stops and quicker service between the termini, they shall apply to the local superintendent, and he has the first and last word on it? A. He would have the matter entirely in hand. You have an instance —

Q. Do you mean just that, Mr. Goff? A. Yes, sir, I mean just that.

The following testimony from the president of the company is also significant in this connection (Record, pp. 5086, 5087): —

The CHAIRMAN. Has not your work in that direction through your time-table department, been confined to a study of the best method of co-ordination of the different lines, so as to provide the least possible lay-over — on the basis of the existing speed schedules?

Mr. SULLIVAN. Yes, sir.

The CHAIRMAN. And if I understood you correctly, the study that has been made through that department has been largely with a view of getting the best possible efficiency out of your system, under the present operating conditions and under the present rate of speed; but there has been no similar study in regard to changes that might be made with a view to increasing the speed of the different lines? Is that correct?

Mr. SULLIVAN. Yes, sir. We have not done very much on the increase of the speed.

The CHAIRMAN. But you feel, so far as the lay-overs are concerned, that while certain lay-overs are inevitable, and in certain cases must inevitably be rather long, the matter has received such careful, expert examination by a department of your company that you do not believe that the lay-overs can be substantially decreased, unless, as Mr. Eastman suggests, it is possible to get increased speed or decrease of running time, so that that increased speed together with the present lay-over time, might inject a new element which would make it possible to make a new adjustment or a readjustment of schedules which might make it better over the present lines?

Mr. SULLIVAN. Yes, sir; that is not only possible, Mr. Chairman, but probable.

The Bay State company is, of course, handicapped by narrow, crowded streets in some of its cities, by crooked, hilly highways in the country districts in which it operates, by poor rolling stock, and, in far too many cases, by bad track conditions. It is also true that safety ought not to be sacrificed for speed, but, taking all these things into consideration, it is still impossible to escape the conclusion that this important question of speed of operation has received in the past too little attention. It is a matter in which difficulties will be encountered and in which the co-operation of the public is necessary and it calls for perseverance and a high order of managerial skill; but there are few departments of street railway operation which will better repay unremitting consideration, especially in these days of "jitney" and motor bus competition, or which hold forth greater promise. Surely so difficult and complex a matter ought not to be left solely in the hands of the local superintendents. It calls for centralized attention and specialized skill.

Before leaving this topic, it should be noted that Mr. Arnold's estimates of possible savings through increase of speed were based upon the present equipment of the road. They require no changes in the present types of cars nor in the present layout of the system. The only expense involved is an appropriation for larger feeder wires, which will hereinafter be considered, and certain repairs and reconstruction of existing track which are essential in any event. With improved types of cars even larger savings in operating expense would, in the judgment of Mr. Arnold, be possible.

Mr. Arnold also thinks that the Bay State company could in some cases reduce the service which it is now providing without injustice to the public and with advantage to itself. His general conclusion on this point was summed up as follows (Exhibit 62, p. 85): —

The traffic of the Bay State Street Railway Company is subject to a wide seasonal variation, to which variation the service is not well adjusted, the consequence being over-service during certain portions of the day or year, as the case may be. It is estimated that a reasonable service adjustment should effect a saving of from \$82,000 to \$133,000 per year.

Changes in service of this character are particularly calculated to arouse public opposition. The company states that it would be glad to co-operate in such a step towards economy, but seems to have little confidence in its feasibility (Record, p. 4878). Reduction of service in short-haul urban territory is very doubtful wisdom, but Mr. Arnold had in mind the longer interurban lines. Careful study of conditions would be essential in making such readjustments, but the patrons of lines where the traffic is very light cannot reasonably expect a frequent service. The Commission thinks it quite probable that there may be routes where a lengthening of headway at certain seasons of the year would be both justifiable and expedient.

#### *Rolling Stock.*

It is generally conceded that the situation with respect to rolling stock is highly unsatisfactory. The condition of the present equipment is characterized by Mr. Arnold as follows (Exhibit 62, p. 33): —

The rolling stock that has recently been purchased is of more modern type, in general well constructed, and is in fair condition. But much of the older equipment, which represents a fairly large proportion of the



rolling stock in operation is not well maintained, nor in many cases well adapted to the service requirements. Many of these cars show lack of maintenance in several respects, such as inadequate truck repairs, difficulty in operation of doors, which seriously interferes with expeditious loading and unloading of passengers, and in the lack or inadequacy of painting, which very decidedly affects the appearance of the rolling stock, as well as the life of the car body.

The failure to make adequate repairs and especially to clean and paint the cars properly reflects seriously upon the management. Not only is such a policy poor operating economy in the long run, a fact which the management admits, but it has a bad effect upon the riding habit and upon the general attitude of the public and of its own employees towards the company. Mr. Witt put the situation picturesquely but correctly when he said (Record, p. 4400): —

In the transportation game you are merely merchandising what you have. The merchant who wants to dispose of his product will decorate his window nicely. I suppose you have people in Boston drawing down \$5,000 a year who can fit up a window attractively and so that people passing will come in and buy. I cannot see any difference between that and a transportation company.

Aside from the present condition of the cars, the company is burdened with a large variety of types, both of car bodies and of electrical equipment, many of them antiquated and obsolete. Out of a total of 1,996 cars in use, 984 are of the open type. While the open car has been popular in this part of the country, beyond question it is an expensive luxury. It involves a duplicate investment, greatly increased maintenance expense, an increased accident hazard, loss of fares and hardship to employees. The semi-convertible car can be made very nearly as attractive to riders and is far more economical. The Bay State company has a heavy excess of traffic in the summer as compared with the winter and this may make it desirable to retain some of the open equipment, but both Mr. Arnold and Mr. Witt were of the opinion that the open type car should, in general, be abandoned as quickly as possible and the semi-convertible substituted. This would involve, also, the replacement of many of the present box cars. A step in this direction has already been taken by the company, for it has recently ordered 200 new cars of the semi-convertible type.

Such a change should lessen running expense very materially. In maintenance alone the economy would be marked. Not only does duplicate equipment swell this item of expense, but so does age and diversity of types. Antiquated cars are in constant need of repair and where there is an almost endless variety of motors, trucks, brakes and similar parts, the expenditure for labor and materials is correspondingly high. The change would also involve economy in operation. With cars of modern type, reductions in running time greater than those which Mr. Arnold has estimated would be feasible, and the accident hazard would in important respects be lessened.

With the new equipment fare boxes could also be used. It is significant that almost alone of the great systems of the country this company at present has not a single prepayment car, although it is very generally conceded that this device tends materially to increase revenue. While the use of fare boxes on lines covering two or more zones involves some difficulties, the Bay State company has plenty of lines where they can easily be used and it is probable that a method of utilizing them on the longer routes can be devised. The company now agrees that their use is desirable (Record, p. 4763).

The change in equipment would facilitate the introduction and use of trailer cars, which at present are not used at all. It is a frequent practice of the company, on many lines, to run so-called "double-headers" at times of heavy traffic, that is, to send out an extra immediately following the regular car and on the same running time (Record, pp. 5093, 5094). Sometimes three or more cars are operated in this way, particularly in the cities, to handle the mill and factory traffic. The use of trailer cars in such situations would lessen labor cost substantially and there are, indeed, lines where they could probably be used to advantage throughout the day. While the construction of certain additional track loops might be necessary, the economy of properly designed trailer cars, even though they require such loops, is now well established.

The experts also urged a limited use of one-man operated cars. To quote Mr. Arnold (Exhibit 62, p. 55): —

At present a large number of lines are being operated with the longest practicable headway to provide any reasonable service, and yet the revenue is not sufficient to result in profitable operation. In such cases, particularly for short lines in suburban territory, the use of the one-man car is recommended at least during the greater part of the day.

He estimated a saving from this source of from \$25,000 to \$39,000 a year. Mr. Witt went much further and advised a certain use of such cars on lines even of heavy traffic, as a means of meeting jitney and motor bus competition. By using them he argued that far more frequent service could be furnished without increased expense. The company takes a position midway between the two, believing that one-man cars can be used to advantage on more routes than Mr. Arnold apparently thinks probable, but not to the extent which Mr. Witt advocates (Record, pp. 4880-4882). The company, it should also be stated, cannot be held responsible for any failure to use such cars up to the present time, for it has been prevented from doing so by decisions of this Commission and of its predecessor, the Board of Railroad Commissioners, decisions based on the alleged danger involved in their operation. It is possible that this danger may have been exaggerated and that it has been minimized by recent improvements in type of car and method of control. At all events, the Commission is quite willing, upon application, to take this matter up again without prejudice and give it renewed consideration.

#### *Car Maintenance Expense.*

Mr. Arnold pointed out that, notwithstanding the fact that painting and certain repairs have been neglected, the expenditures for maintenance of equipment have been abnormally high. As already indicated, this is partly due to old and diversified rolling stock; but other causes enter in. The company is badly in need of better shop facilities for the heavier repair work, and admits this need. Already it has plans for two new shops, one north and the other south of Boston (Record, pp. 5103, 5104). Mr. Arnold also found that the method of handling the maintenance work is not only unsystematic but defective in general plan. The lack of system and adequate records is well illustrated by the difficulty which the company experienced in furnishing any detailed information in regard to the maintenance expenditures in 1914. The defect in plan arises from the large number of car houses in which the inspection and light repair work is carried on, with the resulting small average number of cars maintained in any given house. By a further concentration of this work Mr. Arnold estimated that a saving of \$43,000 per year could be effected.

In commenting upon this criticism the company labored under

some misapprehension. Assuming that the elimination of many operating car houses was contemplated, it directed attention to the wide territory covered and the difficulty which would attend operation from a smaller number of centers (Record, pp. 4882, 4883). The criticism really applied, not to the use of the present number of car houses as operating centers, but rather to their use as centers of maintenance work. In Mr. Arnold's opinion this work can be concentrated to advantage without interfering seriously with the present system of operation.

It appears, however, that in one case at least the number of operating car houses can and ought to be reduced. This was, indeed, admitted by the company (Record, p. 4774). In the city of Lynn several old horse car barns are still used as centers of operation. Not more than two such centers (and perhaps only one) are desirable. Moreover, the land on which some of the old barns stand has so appreciated in value that the change could be effected with a minimum of expense (Record, p. 4778).

#### *Power Supply.*

The power problem, on the whole, has been handled by the company very well. To quote from Mr. Arnold (Exhibit 62, p. 84): —

The power generating equipment, although mostly old and depreciated, at least theoretically, is well maintained and power is produced as economically as could be expected. Although the modern method of high tension generation, transmission and conversion in substations would deliver direct current to the line cheaper than is now done, the difference in operating cost is not sufficient to pay the interest on the investment in new plant in addition to the interest on the investment already existing in plants thus displaced. With the present power load, no changes in the method of power production can be recommended, as long as the old direct current plants are operated at their present efficiency.

The one defect is in the feeder system, where additional copper is badly needed. Mr. Arnold found that the present situation results in a large waste of power and in low voltage on many lines, interfering seriously with the efficient operation of the cars and also increasing maintenance expenses. He estimated a saving of \$85,000 in power alone if more adequate feeders were supplied, which would more than cover interest and depreciation on any new capital required.

In answer to this, the company admitted the need of a better



feeder system and that improved conditions of car operation would result, but it alleged that no net saving in power would result, because any current saved by the new feeders would, if we understand the claim correctly, be wasted by the men on the cars (Record, p. 5243). It is difficult for the Commission to believe, however, that such a situation as this is impossible of correction.

*General and Miscellaneous Expense.*

Mr. Arnold found the general and miscellaneous expenses of the company high as compared with other companies operating in Massachusetts and even higher when compared with companies operating in other parts of the United States which have come under his special observation. He thought that it "should be easily possible to effect a saving in this item of about \$125,000 per year." Figures submitted by the company show that the total expenditures by the Bay State for this purpose, as compared with those by all other Massachusetts companies, except the Boston Elevated, amounted in 1913 to 5.21 per cent of gross receipts as against 5.51 per cent by other companies, in 1914 to 4.95 per cent as against 5.56 per cent by other companies and in 1915 to 5.76 per cent, exclusive of arbitration costs, as against 5.90 per cent by other companies. The following figures also were prepared by the accountants of the Commission from the returns of all Massachusetts companies reporting on the "Class A" forms. Two companies operating in other parts of the country, which are similar in many respects to the Bay State company, are included.

*Ratio of Certain Expenses to Operating Revenues for the Year ending June 30, 1915.*

COMPANY.	Salaries and Expenses of General Officers (Per Cent).	Salaries and Expenses of General Clerks (Per Cent).	General Office Supplies and Expenses (Per Cent).	Law Expenses (Per Cent).	Miscel- laneous General Expense (Per Cent).	Insurance (Per Cent).	Stationery and Printing (Per Cent).	Store Expense (Per Cent).	Garage and Stable Expense (Per Cent).	Total (Per Cent).
Bay State, . . . . .	1.19	1.12	0.42	0.75	0.78	1.07	0.50	0.34	0.24	6.41
Boston Elevated, . . . . .	.68	1.05	.30	.47	.43	.69	.32	.23	.48	4.65
Middlesex and Boston, . . . . .	.84	.99	.33	.23	.18	.81	.32	.41	.51	4.62
Springfield, . . . . .	.85	1.34	.22	.97	.58	.49	.33	.31	.09	5.18
Worcester Consolidated, . . . . .	.98	1.29	.23	.25	.28	.66	.35	.23	.18	4.45
Public Service Railway of New Jersey (1914), The Connecticut Company (1915), . . . . .	.55 .77	.94 1.22	.50 .28	.17 .26	.44 .28	.42 .50	.15 .30	.20 .37	.16 .21	3.53 4.19

The Bay State figures for the 1915 year included \$47,484 of extraordinary expenditure on account of the wage arbitration proceedings and \$14,696 for salaries of division superintendents which should have been charged to other accounts. But even eliminating these items the Bay State total is reduced only to 5.76 per cent, which is still relatively high.

It is true that comparative statistics are apt to be misleading and that conclusions based thereon are of somewhat doubtful value; but Mr. Arnold's conclusions were not based entirely upon statistics but in part upon observation and intimate knowledge of methods of management which are employed by other companies. The Commission is inclined to believe that some substantial saving, although perhaps not so large as the estimate given above, can be made in this department. In saying this we have chiefly in mind methods of organization and handling the work. At all events, it is a matter which is well worthy of the most careful consideration. Better co-operation from the public, of which we shall have more to say later, would no doubt help to decrease this expense.

### *Operating Revenues.*

In his report Mr. Arnold pointed out that the "entire earnings of the Bay State property appear to be small when compared with other properties, either on the basis of the earnings per capita, per track mile or per car mile." Yet it operates in several cities of considerable size and the territory covered is, comparatively speaking, densely populated. One reason for these low relative earnings is undoubtedly the character of the so-called interurban lines, upon which no high-speed, limited service has been developed. They are laid in the highways almost entirely, very little private right of way being owned by the company, with the natural result that scheduled speed is very low in almost all cases. The following table, giving the running time on all routes more than 12 miles long, indicates this fact very clearly: —

OPERATING ROUTE.	Length in Miles.	Running Time (Hours and Minutes).
Boston-Swampscott, . . . . .	12.51	1.15
Salem-Malden, . . . . .	14.09	1.30
Stoneham Square-Salem, . . . . .	15.18	1.30
Beverly-Boston, . . . . .	17.21	1.34
Lawrence-Salem, . . . . .	21.41	1.30
Gloucester-Rockport (Loop), . . . . .	16.99	2.00
Gloucester-Beverly, . . . . .	16.68	1.30
Dracut Center-Medford, . . . . .	22.15	1.54
Lowell-Malden, . . . . .	22.42	1.42
Lowell-Lawrence-Haverhill, . . . . .	19.66	1.45
Lawrence-Malden, . . . . .	22.69	1.57
Haverhill-Dummer Academy, . . . . .	15.38	1.15
Neponset-Nantasket, . . . . .	13.14	1.25
Quincy-Brockton, . . . . .	12.86	1.10
Brockton-Nantasket, . . . . .	21.24	2.10
Brockton-New Bedford, . . . . .	35.38	2.45
Brockton-Taunton, . . . . .	15.18	1.00
Campello-Mattapan, . . . . .	16.05	1.25
Bridgewater-Providence, . . . . .	25.00	1.30
Taunton-Fall River, . . . . .	17.61	1.30

Probably because of this low speed, which is hardly encouraging to passengers, Mr. Arnold states that "there apparently has been no comprehensive effort made to encourage long-haul traffic, which traffic is now handled to a great extent by the steam roads."

Perhaps in the future it may prove possible, with the help of additional legislation, to reconstruct some of these routes on more efficient lines. Mr. Saltonstall, a director of the company who has had experience with high-speed roads, testified as follows (Record, p. 4012):—

I had always hoped, and continue to hope, that if we ever can get a substantial bunch of capital, we can so adjust our through lines from important centers to important centers as to get something better,—something more approaching what they have in the middle West, so as to run fast and big cars and give good service; and I believe that a great deal of that can be done, and the situation can be greatly bettered, if we can ever get capital to get the roadbed and rolling stock up in shape and possibly take out some bad grades by buying private right of way and go around bad grades, and so on.



He felt that in the Merrimac valley, between Lowell, Lawrence and Haverhill, there is a "splendid opportunity" for a high-speed line (Record, p. 4050), an opinion which the general manager of the company apparently endorses (Record, p. 3482).

It is also true that the company is now very badly off for entrances into Boston. It has but one route reaching the center of the city and this is described by Mr. Arnold as follows (Exhibit 62, p. 8): —

While the Scollay Square terminal now used by all Bay State lines from Boston to Chelsea, Lynn, Swampscott, Salem, Beverly, etc., is the best of the three Boston termini used so far as location is concerned, all of this traffic must enter Boston through a single throat in which operation is greatly hampered by narrow streets carrying heavy team traffic and by three drawbridges, one of which is opened at very frequent intervals and which takes from six to seven minutes per swing. Under these exceedingly unfavorable conditions, operation at any reasonable speed or the maintenance of any schedule is practically an impossibility. The result is that service to Chelsea and beyond is slow and unsatisfactory and that the possibility of delays from bridge openings as well as car and team congestion requires very liberal layovers on many of the lines. The effect of such conditions upon through traffic to Lynn, Salem, etc., is obvious — particularly when the steam road competition is considered.

Other routes reach the terminal stations of the Boston Elevated rapid transit lines at Sullivan square on the north and Dudley street and Forest Hills on the south.

For the improvement of operating conditions on the Scollay square route Mr. Arnold made the following suggestion (Exhibit 62, p. 8): —

The recent completion of the East Boston tunnel [improvements] at once suggests a means of avoiding the present congestion by diverting at least the interurban routes from the Bay State to the Boston Elevated tracks at Chelsea via Washington and Meridian streets, East Boston, and the East Boston tunnel. By this means the present difficulties due to narrow, congested streets would be avoided and the number of drawbridges crossed reduced from three to one. Undoubtedly a considerable betterment in service would result from such a change.

He also felt that it would be highly desirable and probably advisable to bring some of the other routes direct into the heart of Boston without change of passengers, over the surface or rapid transit lines of the Boston Elevated Railway Company.

All these suggestions, however, are so largely speculative that

they have but a remote bearing in the present proceedings. It is sufficient to say that the Commission is convinced that the interurban lines are in but a rudimentary stage of development at the present time and that they hold forth the possibility of largely increased traffic, provided they can in some way be made to furnish more expeditious and more convenient service.

It is quite probable, also, that the company may be able to swell its revenues materially by a further extension of the trolley freight service. Mr. Arnold's comment was as follows (Exhibit 62, p. 80): —

One very proper source of increased income usually neglected is from the carriage of express, light package freight and perishable farm products. In many interurban centers scheduled electric freight service, with or without automobile collection and delivery, is relied upon largely for daily transportation of milk and garden truck to the populated centers; also for the handling of package freight for quick delivery, special tariffs being in vogue covering various kinds of service as regards collections and delivery by the company. This business may be handled over electric railway lines mostly at night or during specified parts of the day when passenger traffic is minimum. In principle, it contemplates the more intensive use of the investment in existing track, the net revenue from which puts the company in a better position to improve the passenger service over these same tracks.

Up to the present time the company has attempted to develop such service only to the south of Boston. It has been experimental, but certain unprofitable features have been eliminated and the experimental stage is rapidly being passed (Record, pp. 4835, 4836). War conditions have made recent growth in business phenomenal. While the present situation may be abnormal, the prospects are more hopeful than ever before and the company has in mind the extension of this service to the territory north of Boston (Record, p. 4836). In that territory the population is larger and the freight service via the steam lines between many important points geographically near together has been very unsatisfactory, because of the delays incident to indirect routes and junction points. There is also much market gardening. If trolley service in this territory is efficiently conducted, the Commission believes that it offers substantial promise.

It is further possible that additional revenue may be secured by improving some of the numerous amusement parks which the company owns and charging admission. At present, these parks are free and according to the president of the company it is

doubtful whether they contribute much to its net earnings (Record, p. 5005). He seemed to feel that the situation would be improved if admission could be charged, which chapter 133 of the General Acts of 1915 has now made possible (Record, p. 5006).

#### *Unused Real Estate.*

At the present time the company owns a substantial amount of real estate which is not now and has not for a long time been used for street railway purposes. The estimated original cost of the land is \$134,338 and of the buildings \$142,940. The estimated present worth of the land is \$248,933. The total income received from this property during the year ended June 30, 1914, amounted to but \$4,753.39, without deducting expenses or taxes. While the company claims that it has made every possible effort to dispose of this real estate, we are inclined to believe that too much stress has been laid upon the selling price, without taking into consideration the constant drain upon the resources of the company involved in holding this property. The increase in estimated value indicates that the land, at least, is salable.

In addition to the unused real estate, it seems probable that some of the park property could be sold to advantage. For example, the Mountain Rock Park in Tyngsborough, near Lowell, contains 99 acres of land located on the borders of a lake, all of which land can hardly be needed for park purposes. It is valued at \$48,000, a figure at which the experts thought the company "might reasonably expect to sell the land" (Record, pp. 2012, 2013). Furthermore, there is reason to believe that the substitution of semi-convertible for open cars would release a certain amount of valuable real estate in cities which is now used for storage purposes.

#### *Summary.*

The total savings in expense through greater operating efficiency specifically estimated by Mr. Arnold may be tabulated as follows:—

	Maximum.	Minimum.
Maintenance of way and structures, . . . . .	None	None
Maintenance of equipment, . . . . .	\$100,000	\$100,000
Conducting transportation power, . . . . .	85,000	85,000
Operation of cars: —		
Service adjustment, . . . . .	133,000	82,000
Speed increase, . . . . .	234,000	158,000
One-man cars, . . . . .	39,000	25,000
Car house expense, . . . . .	43,000	43,000
General and miscellaneous expense, . . . . .	125,000	125,000
Total saving, . . . . .	\$759,000	\$618,000

It is stated that the minimum figure is arrived at by changes which could easily be effected in the service, while the maximum would "require more radical changes and probably could not be effected until the conditions have been improved by additional feeder capacity, change of gear ratio, improvement of poor track conditions, and, in fact, a general improvement of the entire service and property". Mr. Arnold, however, makes this further statement (Exhibit 62, p. 77):—

Attention is again called to the fact that the savings estimated under the column head "Maximum" do not represent the maximum operating economy attainable with the system. With the growth of the property additional double track will be built as needed, and the track at present in bad condition will necessarily be rehabilitated. With the growth of the business new rolling stock will be acquired and the use of much of the present old rolling stock must be discontinued, new equipment being substituted therefor, which will permit the standardization of the rolling stock, and will afford the opportunity for the instalment of modern prepayment cars. With the extension of the system and additional requirements for power, it is probable that a change will gradually be made from the present direct current systems to a modern high tension distribution system, and moreover as time goes on it will be necessary to retire many of the direct current generating stations on account of age and higher maintenance, resulting therefrom. When this change has been fully accomplished, material savings above those estimated should be made in power generation.

In other words, the estimated savings are based on present rolling stock and involve no change in other forms of property, except certain improvements to the car houses and shop facilities, additional feeder wires and a general rehabilita-



tion of neglected roadbed and track. They include no savings which might follow the substitution of better car equipment; nor do they take into account the increase in revenue which would almost certainly follow from the furnishing of better service, nor any increase in revenue from the trolley freight service, nor any advantage which might accrue from a changed policy towards the present real estate holdings.

It has been urged that his estimates do not take into account increased capital charges because of new investment. More careful consideration, however, will show that the expenditures involved are largely on account of deferred renewals and would therefore be chargeable to earnings rather than to capital. The expense of rehabilitating roadbed and track has been estimated at \$1,659,720, the cost of additional feeders at \$550,000 and new shops at \$400,000 (Exhibit 64). Assuming that one-half of the track expense could be capitalized and the entire cost of feeders and shops, which is a very liberal estimate, the new investment would be in the neighborhood of \$1,750,000. Assuming interest and depreciation at 10 per cent the increase in capital charge would be but \$175,000, offsetting a comparatively small portion of the estimated saving in expense.

#### CO-OPERATION OF THE PUBLIC.

The economies which have been suggested cannot, however, be carried fully into effect without the co-operation of the public. Such co-operation is, we believe, of more real value to the Bay State Street Railway Company than an increase in fares. It has without much question been one of the chief elements which have made three-cent fares possible in Cleveland. There is too often a tendency to regard a public service corporation as a public enemy rather than a public servant, to disregard the source from which it derives its revenues, and to overlook in considering questions of local service the broader interests of the community as a whole.

This is well illustrated by the matter of paving. In 1898 an act was passed (St. 1898, c. 578) which was clearly intended to relieve street railway companies from the duty, formerly imposed, of maintaining and repairing the street surface within their track locations and to substitute an excise or "commutation" tax in place of this duty, a tax which the Bay State company now pays. For the year ended June 30, 1914, it amounted to about \$210,000. Nevertheless, the investigation in this case

of the property accounts and operating expenses of the company has brought to the surface the fact that it has been required, ever since this law was passed, not only to pay the tax but, with comparatively few exceptions, to do the same work which it was previously required to do.

The courts have held that the law of 1898 did not in fact exempt companies from the duty of caring for the street surface where that duty was imposed, not by the general statutes, but by provisions in original location grants; but in the many cases throughout this system where the original grants contain no such provisions it develops that the Bay State company has, in effect, been required by various forms of persuasion to continue to do the old work. In securing new locations involved in the laying of double track or in the reduction of curves or in other respects necessary to the efficient operation of the road, apparently the company has continually been obliged to dicker with the local authorities and finally to agree to perform work upon the streets which the statutes do not require or even contemplate (Record, pp. 4666-4675).

It is perfectly natural that municipal governments, anxious to keep down the local tax rate by which they are so largely judged, should seek to unload upon the street railway company all possible expense, but such a policy, in the long run, reacts upon the public served. Street railway companies have no mysterious source of revenue, but obtain their funds from the people who ride in their cars. Any burden or tax imposed upon the company these people must ultimately pay. If the tax or burden is unjust it only means, in the final analysis, that a portion of the public is being subjected, by indirection, to an inequitable form of special taxation. Furthermore, the burden is not measured wholly by the cost of the physical work which the company is finally required to do, for the continual dickering over such matters consumes what is, in the aggregate, a very large amount of time and adds materially to the cost of management.

The importance of this question is shown by the fact that, disregarding such matters as grading, bridge work, etc., the cost of the paving alone, for which the Bay State company has paid since the law of 1898 was enacted and which it has been expected to maintain, is estimated at more than \$2,000,000. In a report made to the General Court at its last session the Commission strongly urged that the present system should be changed by eliminating, in effect, the present "commutation" tax, by placing all paving work squarely in the hands of the municipali-

ties, and by requiring the street railway companies to meet only the reasonable cost of any such work done within their track locations. Whether or not this is the best plan that might be adopted is here immaterial, but at all events it is perfectly clear that the companies ought not to be required to pay the present "commutation" tax and at the same time do the work for which this tax was supposed to be a substitute.

This illustration shows the tendency and indicates a burden from which the Bay State company and its patrons are justly entitled to relief. The co-operation necessary to secure greater efficiency in operation must come more directly from the general public. Take, for example, the question of stopping places. A reduction in the present number of white post stops will inconvenience many patrons. In many cases it will mean a somewhat longer walk to the car than is now necessary. On the other hand, it will increase scheduled speed, lower expense and, on the whole, prove a benefit to the community, a fact which has been abundantly demonstrated in other parts of the country. Mr. Witt testified that by eliminating about 47 per cent of the stops in Cleveland, car riders were saved "from 3 minutes on short lines to as much as 11 minutes on the longer lines, with the good result that we brought platform charges down about  $\frac{3}{4}$  of a cent a car mile" (Record, p. 4396). The total saving in five years he estimated at \$1,000,000. Of the stopping places on the Bay State system he said: —

The frequency of the car stops here is probably the worst that I ever looked at. I was up in Lowell with Mr. Ogden, one of the inspectors of the Commission, and spent considerable time on the main street there, and they had so many poles painted white that they all looked white. These stops are too close. The car rider ought to make a contribution to assist the railway company in maintaining a better schedule and cutting down operating cost, because where you have fewer stops per mile, you increase the schedule and of course cut down the platform expenses, and then you make a material saving on your equipment because there is a big difference, whether you are applying a brake 15 times a mile, or whether you are applying it 8 times a mile.

Mr. Arnold also laid great stress on the public co-operation necessary in securing efficient and economical service, summing up his conclusions as follows (Exhibit 62, pp. 87, 88): —

It is probable that such changes as the elimination of many of the present indicated stops and the decreasing of headway on overserved lines will not at first appeal to the patrons of the road. But it is believed that

the better service which should result from such changes would be not only more advantageous to the railway company, but also to the patrons. If many of the unreasonable operating restrictions are continued, it will not be possible to effect fully the savings estimated. This can only result in the continued higher cost of service, the burden of which should, in all fairness, be shared by the public in the way of proper rates of fare if such conditions are insisted upon.

The joint responsibility of the city and public authorities should not be neglected in this distribution of burden. In the matter of police traffic regulation alone, much improvement could be effected especially along the congested thoroughfare in Chelsea where traffic regulation is scarcely in evidence. Affecting as this does millions of passengers per year, the interests of the public would seem to require the most vigorous regulation of street traffic to give the cars the right of way, at least during rush hours, which right is already a statutory right, but very indifferently exercised. Thus, during the winter months snow should be promptly removed in Chelsea street, not permitted to accumulate along the roadway as an additional encumbrance on a street already too narrow and obstructed by jogs in the sidewalks and car tracks.

Likewise, the reservation of closed bridge hours is entirely inadequate for public needs; they should be closed during the entire rush hours as in other cities, or at least the existing regulations more vigorously enforced.

This civic responsibility is fully as definite as that of the company in keeping the cars in operation under all conditions of traffic, weather and business prosperity.

Matters apparently small are of considerable consequence in street railway operation. The loading and unloading of cars, for instance, has an importance which is seldom realized by the public. If passengers habitually move slowly dollars are lost to the company. If the public served by the Bay State company prefers small conveniences to larger benefits it can do so, but it must expect to pay the cost. Any plan for the improvement of operating conditions on this system calls imperatively for the sympathetic co-operation not only of state and local authorities but of the public itself. Minor sacrifices must be made to secure greater gains. In the past there has, we think, been a failure to recognize the necessity for and the advantage of such co-operation. Small concessions have been withheld which ought, in the larger interest, to have been granted; petty restrictions have been imposed which, from a less narrow viewpoint, would not have been imposed. We believe, however, that the long hearings and the mass of testimony taken in this case have at least had the effect of altering, somewhat, the public attitude in this



respect, and that the prospect is good that, if the Bay State company make any serious and comprehensive attempt to improve operating conditions, it will not find the public lacking in willingness to co-operate.

### CONCLUSIONS.

In the last analysis a case like this cannot be decided by the mere application of mathematical formulas but calls in some measure for the exercise of broad judgment and reasonable discretion on the part of the Commission. This judgment and discretion must be exercised, however, with a realization that this differs from a case where patrons of a company are seeking to *reduce* fares. Here the company is seeking to *increase* its rates and the statute definitely places upon it the burden of proof. To repeat what has already been said, "the company must satisfy the Commission that additional net income is needed in order that a fair return may be earned upon capital honestly and prudently invested; it must satisfy the Commission that the needed income cannot be secured through more efficient management and operation; and it must further satisfy the Commission that there is at least a reasonable prospect that the change in fares desired will result in an increase in revenue and in no larger increase than is reasonably needed."

The weakness in the Bay State system is not difficult to understand. It arises from the original error in judgment on the part of the present owners of the property. This error lay in the too hasty combination, on an equal basis, of all sorts and conditions of companies without any adequate consideration of the fact that some of the older properties had suffered in capitalization and physical condition from the operations of certain predatory syndicates and that many of the newer properties were manifestly "speculative" in their nature and constructed in territory where the hope of any early return was exceedingly small. Coupled with and accentuating this error was the inflation in the shares of the holding company used in bringing about the combination. It is true that criticism after the event is often unjust; and this consideration would be entitled to much weight if the project in its inception had been the result of carefully matured judgment. But evidence to this effect is lacking. The real character of the preliminary investigation is concisely indicated by the following passage from the opening statement of counsel for the company (Record, p. 36): —

Closer inspection of some of the lines of railway that had been acquired revealed an astonishing need of repairs and reconstruction. Here there was a mistake that accounts for a long and perplexing train of troubles.

From this initial handicap the system and its managers have continually been suffering. Portions of the property have always been dragging down the rest, and the history of the system is the history of a struggle against odds to meet the demands which the situation and the securities of the Massachusetts Electric Companies have imposed. The constant tendency has been to live in the present and let the future take care of itself, and the results of this policy are now being felt. We cannot help believing that this continual struggle has had its effect upon the men directly in charge of the management of the property, a fact which should not be overlooked in weighing the character of their work. They have been faced with a difficult and oppressive situation in which they have not wholly been free agents. As the president of the company has well said, the property has never been in a "normal" condition (Record, p. 4993).

Sharing the responsibility for present conditions with the original error, but traceable to it, two facts are brought clearly to light by the evidence. In the first place, making every allowance that can reasonably be made, the property has been permitted to run down in a manner which cannot be justified. Passing over the failure to provide for future depreciation, the neglect to make current repairs and renewals when due and to keep the property in suitable condition for safe, efficient and economic operation is, under the circumstances of the case, difficult to excuse. In the second place, apart from this neglect, the company has failed to satisfy our minds that additional net income cannot be secured through more efficient management and operation. Without undertaking to say that either Mr. Arnold or Mr. Witt is wholly right or that the savings which have been estimated can be fully realized, the Commission is far from convinced that the company has done all that it can reasonably be expected to do in this direction.

The company now seeks an increase in the rates of fare throughout its entire territory, in the densely populated as well as in the sparsely settled sections, on the paying lines as well as on those which are not self-supporting, an increase estimated to realize about \$1,250,000. Can such an increase with justice be permitted? Taking the year ended June 30, 1914, as a test, the

analysis which we have made of the evidence shows that the company failed by about \$600,000 to earn a fair return from its passenger business in Massachusetts upon the present amount of capital honestly and prudently invested and used therein. In considering this deficiency, the fact that wages and property, as well as revenue have increased since 1914 ought not to be ignored, nor the fact that no inconsiderable amount of capital, resulting probably in increased fixed charges, will be required in the future for additions and betterments if the system is to be developed as it should be developed. A situation undoubtedly exists which calls for treatment. On the other hand, it is not a situation, in our judgment, which need cause discouragement. The company operates in many thickly populated and growing districts where traffic opportunities are large if they can but be developed. As a matter of fact the showing which the system made in the 1914 year was, on the whole, better than the showing in many previous years when no increase in fares was sought. Had it not been for the great increase in maintenance expense the relative improvement would have been marked. If the company and the public will co-operate and each do its reasonable share toward the relief of present conditions the prospects for the future cannot be considered unfavorable.

The company, as we have already stated, must expect temporarily to suspend dividends on its common stock and turn back earnings into the property. This may seem a drastic prescription, but the situation clearly calls for it in order to place the future earning power of the system upon a more stable basis. It is, indeed, no more than has often been found necessary in well-managed industrial enterprises. It is essential, from the point of view of all concerned, that the results of recent neglect of the property should be overcome and that it should be restored, as soon as possible to first-class physical condition suitable for efficient operation.

In the second place the Commission is convinced that an opportunity exists for adding to net earnings through improved methods of operation which is deserving of the most serious attention of the management. In saying this, we have in mind not only a decrease in operating expenses but also an increase in operating revenues. It is a matter the importance of which cannot be overestimated. The company ought to follow up the suggestions which have been made in this case by Mr. Arnold and other experts with an open mind and with the aid of the best skill which it can command. In such an endeavor this

Commission stands ready to assist and co-operate in every feasible and proper way.

Aside from an increase in fares, the community, we think, can reasonably be expected, both for its own sake and for the sake of the company, to lend its aid in the following ways. In the first place, it can give its sympathetic co-operation to the work of improving operating conditions by making such small sacrifices as the larger good may seem to demand and by removing all unnecessary obstacles from the path of this work. For example, the patrons of the road can consent, without complaint, to a reasonable reduction in the present excessive number of stopping places and, in exceptional cases, perhaps, to a certain reduction in service. Through their local governments they can, also, help to improve traffic conditions on the streets, so that the operation of cars may not unnecessarily be impeded, and can grant, without imposing undue restrictions, such new locations as may from time to time be necessary for the improvement of the service.

In the second place, the public can relieve the company from any unjust burdens or restrictions which may now be imposed. So long, for example, as the present "commutation" tax is paid, it is unreasonable to expect the company to meet the cost of work on the street surface, except in so far as it disturbs that surface itself. Indeed, it may be that the entire system of street railway taxation is in need of revising, and that less onerous burdens should be imposed in this manner upon the companies and the public which they serve. Much can also be done, in the case of the "jitneys," by assuring conditions of fair competition. The operators of this new form of public service ought to be subjected to proper public regulation and to some of the obligations which the owners of the regularly established forms of transportation are by law compelled to observe.

In the judgment of the Commission, the public can also be reasonably expected to make contribution in the form of some increase in fares. In our opinion the proposed new schedule which has been filed manifestly cannot be allowed and the right to carry it into effect must be denied. There is no evidence before the Commission which would justify it in permitting the regular unit of cash fare to be increased in the populous centers which are already carrying their fair share of the burden. We also have grave doubt whether an increase in the five-cent unit in this thickly-settled, short-haul territory where "jitney" competition is so feasible and so prevalent would be of material



benefit to the company. It is not a policy which street railway companies generally in this country have thought it wise to adopt. Any increase in the unit cash fare must, therefore, upon the evidence, be disallowed in the present five cent zones within, or from the centers of, the following cities: —

Boston (including Hyde Park),  
Brockton,  
Chelsea,  
Everett,  
Fall River,  
Haverhill,  
Lawrence,  
Lowell,  
Lynn,  
Malden,  
Melrose,  
Quincy,  
Revere,  
Salem,  
Taunton.

These are, broadly speaking, the districts in which the company has proposed to sell nine tickets for fifty cents. The five-cent zones radiating from these centers include, in whole or in part, adjoining cities and towns as, for instance, Beverly, Peabody, Saugus and Swampscott.

The other lines operated by the company, in general, form part of the interurban routes as distinguished from what may be called the urban and suburban portions of the system, and are located in the less populous districts. If the company wishes to increase the prevailing fares upon these lines, it is just and reasonable, in our judgment, for it to do so. Certain restrictions upon the discretion of the management in this respect should, however, be indicated. The company in its schedule of proposed fares has, in certain cases, provided for an increase of the unit cash fare beyond six cents, has introduced certain new fare zones and has made certain alterations in existing zones and transfer privileges. The Commission has not been able, from the evidence submitted by the company and within the limits of time at its disposal since the close of the hearings, to deal with such changes in the present proceeding. For this reason and also because such fare increases would, in any event, yield a small increase of revenue and might cause serious hardship to certain small groups of

riders, the Commission is of the opinion that no changes of this character can be allowed at this time. This finding, however, is not intended to preclude the company from filing a new notice and schedule embodying such changes of this character as it deems proper, when opportunity may be afforded for a more detailed consideration of the circumstances of each particular case.

An order will be entered cancelling the rates and charges stated in the schedule filed with the Commission. The company is, however, authorized to file a new schedule, to become effective after 30 days from the filing thereof, of rates for the transportation of passengers on all its lines upon the basis herein set forth, which schedule, upon approval by the Commission and proper notice, will be allowed to become effective without further hearing thereon. With respect to reduced fare tickets, the Commission doubts its authority, in general, to require the company to put into effect, or continue, concessions over the regular rates of fare, but reserves the right, before approving any new schedule of fares, to consider the propriety and advisability of the discontinuance of such concessions in certain cases.

Any readjustment of fares involves so many uncertain factors that it is manifestly impossible to estimate accurately in advance the results which will accrue from the changes indicated herein. If, after an experience of not less than one year under the new rate schedule, the situation might appear either to the company or to the public to warrant a further revision of rates, the Commission is prepared upon application to deal with the situation anew in the light of conditions then prevailing.

The several petitions of the aldermen of Fall River, of certain legal voters of the city of Lynn, of the selectmen of Saugus and of the selectmen of Burlington, dealt with certain phases of the subject of this inquiry. Upon the understanding that they were to be considered in the general investigation, they were not specifically urged at the hearings. We believe that the questions raised in the petitions are disposed of in the discussion and findings in the present proceeding and the petitions are to be placed upon file. The general rulings made and conclusions reached herein make it unnecessary formally to rule upon certain motions filed during the course of the hearings.

## ORDER.

*Notice of the Bay State Street Railway Company of proposed changes in fares and fare limits and in transfer privileges upon its railway.*

It appearing that on October 21, 1915, an order was entered suspending until May 1, 1916, the rates and charges stated in the schedule described in said order; and that said rates and charges were further suspended under the provisions of chapter 24 of the General Acts of 1916, to September 1, 1916, by an order dated April 24, 1916; and

It further appearing that a full investigation of the matters and things involved has been had, and that the Commission on the date hereof has made and filed a report containing its findings of fact and conclusions thereon, which said report is herein referred to and made a part hereof, it is

*Ordered,* That the Bay State Street Railway Company be and is hereby notified and required to cancel the rates and charges and changes of fare limits and transfer privileges stated in the schedule specified in said orders of suspension.

It is

*Further ordered,* That a copy of this order be filed with said schedule at the office of the Commission, and a copy hereof be forthwith served upon the Bay State Street Railway Company.

By the Commission,

(Signed)      ANDREW A. HIGHLANDS,  
*Secretary.*

## APPENDIX A.

AREA, POPULATION AND DENSITY OF POPULATION OF  
CITIES AND TOWNS SERVED BY THE BAY STATE  
STREET RAILWAY COMPANY.

*Population of Massachusetts Cities and Towns as of the Year 1915; Population of New Hampshire and Rhode Island Cities and Towns as of the Year 1910.*

## MASSACHUSETTS CITIES.

NAME.	Population.	Area in Square Miles.	Population per Square Mile.
Beverly, . . . . .	22,959	15.32	1,498.6
Boston, . . . . .	745,439	47.34	15,746.4
Brockton, . . . . .	62,288	21.48	2,899.8
Chelsea, . . . . .	43,426	2.17	20,001.9
Everett, . . . . .	37,718	3.75	10,058.1
Fall River, . . . . .	124,791	38.08	3,277.0
Gloucester, . . . . .	24,478	26.45	925.4
Haverhill, . . . . .	49,450	35.83	1,380.1
Lawrence, . . . . .	90,259	7.24	12,466.7
Lowell, . . . . .	107,978	14.27	7,566.7
Lynn, . . . . .	95,803	11.22	8,538.6
Malden, . . . . .	48,907	5.13	9,533.5
Medford, . . . . .	30,509	8.62	3,539.3
Melrose, . . . . .	16,880	4.80	3,516.6
New Bedford, . . . . .	109,568	19.80	5,533.7
Newburyport, . . . . .	15,311	8.90	1,720.3
Quincy, . . . . .	40,674	16.64	2,444.3
Revere, . . . . .	25,178	6.32	3,983.8
Salem, . . . . .	37,200	8.18	4,547.6
Taunton, . . . . .	36,161	48.59	744.2
Woburn, . . . . .	16,410	13.11	1,251.7
Total, . . . . .	1,781,387	363.24	4,904.1 <sup>1</sup>
Less Boston and New Bedford, . . . . .	855,007	67.14	12,734.6
	926,380	296.10	3,128.6 <sup>1</sup>

<sup>1</sup> Average.



## AREA, POPULATION, ETC. — CON.

## MASSACHUSETTS TOWNS.

NAME.	Population.	Area in Square Miles.	Population per Square Mile.
Abington, . . . . .	5,646	10.14	399.2
Andover, . . . . .	7,978	31.99	249.3
Arlington, . . . . .	14,889	5.54	2,687.5
Avon, . . . . .	2,164	4.50	480.8
Billerica, . . . . .	3,246	25.96	125.0
Braintree, . . . . .	9,343	14.41	648.3
Bridgewater, . . . . .	9,381	28.14	333.3
Burlington, . . . . .	751	11.88	63.2
Chelmsford, . . . . .	5,182	22.96	225.7
Danvers, . . . . .	11,177	13.84	807.5
Dedham, . . . . .	11,043	10.79	1,023.4
Dighton, . . . . .	2,499	22.35	111.8
Dracut, . . . . .	4,022	21.30	188.8
East Bridgewater, . . . . .	3,689	17.72	208.1
Easton, . . . . .	5,064	29.44	172.0
Essex, . . . . .	1,677	14.38	166.0
Freetown, . . . . .	1,633	36.21	45.1
Georgetown, . . . . .	2,058	13.27	155.1
Groveland, . . . . .	2,377	9.37	253.6
Hamilton, . . . . .	1,879	14.99	125.3
Hanover, . . . . .	2,666	15.63	170.5
Hingham, . . . . .	5,264	22.59	233.0
Holbrook, . . . . .	2,948	7.32	402.7
Hull, . . . . .	2,290	2.53	905.1
Ipswich, . . . . .	6,272	33.35	188.0
Lakeville, . . . . .	1,491	36.16	41.2
Lynnfield, . . . . .	1,112	10.49	106.0
Marblehead, . . . . .	7,606	4.42	1,720.8
Methuen, . . . . .	14,007	23.05	607.6
Middleborough, . . . . .	8,631	72.96	118.3
Middleton, . . . . .	1,308	14.46	90.4
Milton, . . . . .	8,600	13.20	651.5
Needham, . . . . .	6,542	12.75	513.1
Newbury, . . . . .	1,590	24.34	65.3
North Andover, . . . . .	5,956	27.83	214.0

## AREA, POPULATION, ETC. — CON.

## MASSACHUSETTS TOWNS — CON.

NAME.	Population.	Area in Square Miles.	Population per Square Mile.
North Reading, . . . . .	1,292	13.53	95.4
Norwell, . . . . .	1,563	21.33	73.2
Norwood, . . . . .	10,977	10.59	1,036.5
Peabody, . . . . .	18,625	16.81	1,107.9
Randolph, . . . . .	4,734	10.32	458.7
Raynham, . . . . .	1,810	20.72	87.3
Reading, . . . . .	6,805	9.85	690.8
Rehoboth, . . . . .	2,228	47.46	46.9
Rockland, . . . . .	7,074	10.11	699.7
Rockport, . . . . .	4,351	7.07	615.4
Rowley, . . . . .	1,481	19.03	77.8
Saugus, . . . . .	10,226	11.58	883.0
Seekonk, . . . . .	2,767	18.68	148.1
Somerset, . . . . .	3,377	8.51	396.8
Stoneham, . . . . .	7,489	6.65	1,126.1
Stoughton, . . . . .	6,982	16.39	425.9
Swampscott, . . . . .	7,345	3.09	2,377.0
Tewksbury, . . . . .	5,265	20.88	252.1
Tyngsborough, . . . . .	967	17.85	54.1
Wakefield, . . . . .	12,781	7.89	1,619.8
Walpole, . . . . .	5,490	21.09	260.3
Wenham, . . . . .	1,068	8.21	130.0
West Bridgewater, . . . . .	2,741	15.75	174.0
West Newbury, . . . . .	1,529	14.66	104.3
Westwood, . . . . .	1,448	11.24	128.8
Weymouth, . . . . .	13,969	17.72	788.3
Whitman, . . . . .	7,520	6.98	1,077.3
Wilmington, . . . . .	2,330	17.12	136.1
Winchester, . . . . .	10,005	6.27	1,595.6
Total, . . . . .	346,220	1,097.64	315.4 <sup>1</sup>

## NEW HAMPSHIRE CITIES AND TOWNS.

Nashua, . . . . .	26,005	32.02	812.1
Hudson, . . . . .	1,344	28.04	47.9
Total, . . . . .	27,349	60.06	455.3 <sup>1</sup>

<sup>1</sup> Average.

## AREA, POPULATION, ETC. — CON.

## RHODE ISLAND CITIES AND TOWNS.

NAME.	Population.	Area in Square Miles.	Population per Square Mile.
Newport, . . . . .	27,149	9.00	3,016.5
Middleton, . . . . .	1,708	12.50	136.6
Portsmouth, . . . . .	2,681	23.30	115.1
Tiverton, . . . . .	4,300	30.00	143.3
Total, . . . . .	35,838	74.80	479.1 <sup>1</sup>

## SUMMARY.

Cities in Massachusetts, . . . . .	1,781,387	363.24	4,904.1
Towns in Massachusetts, . . . . .	346,220	1,097.64	315.4
Cities and towns, New Hampshire, . . .	27,349	60.06	455.3
Cities and towns, Rhode Island, . . . .	35,838	74.80	479.1
	2,190,794	1,595.74	1,372.9 <sup>1</sup>
Less Boston and New Bedford, . . . . .	855,007	67.14	12,734.6
	1,335,787	1,528.60	873.8 <sup>1</sup>

<sup>1</sup> Average.

## APPENDIX B.

STREET RAILWAY COMPANIES CONSOLIDATED INTO THE  
BAY STATE STREET RAILWAY COMPANY.

COMPANY.	Commenced Operation.	Mileage when acquired by Massachusetts Electric Companies.
Beverly and Danvers, . . . . .	1890	3.169
Boston, Milton and Brockton, . . . . .	1899	10.364
Braintree, . . . . .	1894	11.710
Randolph, . . . . .	1896	-
Brockton (Old Colony), . . . . .	1881	46.747
Brockton and Holbrook, . . . . .	1892	-
Brockton and Stoughton, . . . . .	1895	-
East Side, . . . . .	1888	-
Whitman, . . . . .	1891	-
Brockton, Bridgewater and Taunton, . . . . .	1897	21.170
Brockton and East Bridgewater, . . . . .	1897	4.325
Dighton, Somerset and Swansea, . . . . .	1895	12.567
(4) Georgetown, Rowley and Ipswich, . . . . .	1900	18.183
Globe, . . . . .	1880	30.521
Fall River, . . . . .	1896	-
Gloucester, . . . . .	1886	9.173
Gloucester, Essex and Beverly, . . . . .	1895	22.262
Gloucester and Rockport, . . . . .	1895	1.574
(2) Hanover (South Shore and Boston), . . . . .	1896	69.226
Braintree and Weymouth, . . . . .	1895	-
Bridgewater, Whitman and Rockland, . . . . .	1897	-
Hingham, . . . . .	1896	-
Hull, . . . . .	1891	-
Nantasket Electric, . . . . .	1895	-
Rockland and Abington, . . . . .	1893	-
(3) Haverhill and Andover, . . . . .	1902	6.951
(4) Haverhill, Georgetown and Danvers, . . . . .	1896	6.020
(3) Lawrence and Reading, . . . . .	1900	12.713
(5) Lowell and Boston (Lowell and Woburn), . . . . .	1901	9.203
Lowell, Lawrence and Haverhill, . . . . .	1893	64.869
Haverhill and Groveland, . . . . .	1877	-
Merrimack Valley, . . . . .	1867	-
People's, . . . . .	1897	-



## STREET RAILWAY COMPANIES — CON.

COMPANY.	Commenced Operation.	Mileage when acquired by Massachusetts Electric Companies.
(2) <i>Lowell Horse R. R.</i> (Lowell and Suburban), . . . . .	1864	64.654
<i>Lowell and Dracut</i> , . . . . .	1886	-
<i>Lynn and Boston</i> (Boston and Northern), (Bay State), . .	1860	129.190
Essex Electric, . . . . .	1890	-
Lynn Belt Line, . . . . .	1890	-
<i>Lynn City</i> , . . . . .	1874	-
<i>Naumkeag</i> , . . . . .	1876	-
<i>Salem and Danvers</i> , . . . . .	1884	-
<i>Salem and So. Danvers</i> (Salem), . . . . .	1863	-
(3) Middleton and Danvers, . . . . .	1901	13.798
Mystic Valley, . . . . .	1896	6.532
Arlington and Winchester, . . . . .	1897	-
Needham and Boston, . . . . .	1899	3.970
(1) New Bedford, Middleborough and Brockton, . . . . .	1899	32.212
Norfolk Central, . . . . .	1896	6.974
Norfolk Suburban, . . . . .	1894	12.345
<i>North Woburn</i> , . . . . .	1866	7.683
Providence and Taunton, . . . . .	1898	13.852
<i>Quincy and Boston</i> , . . . . .	1889	40.359
Manet, . . . . .	1890	-
<i>Quincy</i> , . . . . .	1888	-
Reading and Lowell, . . . . .	1895	11.968
(3) Reading, Wakefield and Lynnfield, . . . . .	1902	7.212
Rockport, . . . . .	1896	6.788
Salem and Wakefield, . . . . .	1898	6.363
<i>Taunton</i> , . . . . .	1873	18.396
Taunton and Brockton, . . . . .	1897	13.539
Wakefield and Stoneham, . . . . .	1892	15.830
West Roxbury and Roslindale, . . . . .	1896	15.440
Woburn and Reading, . . . . .	1896	4.231

In the above list the original names of the companies are given in each case. Where the original names were afterwards changed, the change is noted in parentheses. Companies whose names are in italics originally operated horse car lines. Companies whose names are indented were consolidated with others prior to the advent of the Massachusetts Electric Companies and are listed, in each case, under the name of the company with which they were merged. The Massachusetts Electric Companies acquired control of the twenty-eight companies whose names are not indented or preceded by a numeral in June, 1899; of the company marked (1), very shortly afterwards; of the companies marked (2), in August and September, 1900; of the companies marked (3), in the year ended September 30, 1901; of the companies marked (4), in the year ended September 30, 1904; and of the company marked (5), in the year ended September 30, 1906.

## APPENDIX C.

## BAY STATE STREET RAILWAY COMPANY.

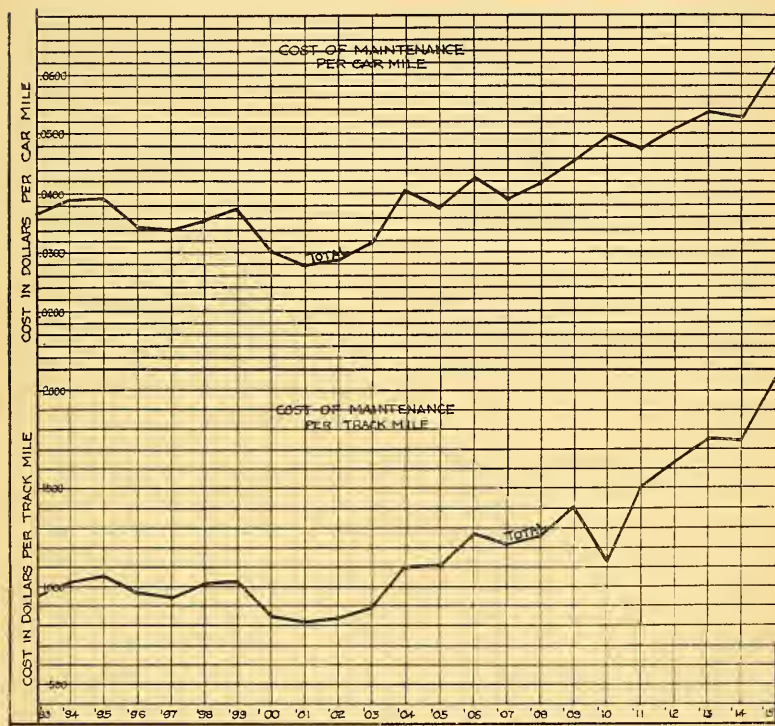
*Detail of Overhead Charges.*

## HISTORIC COST.

	Engi- neer- ing.	Inter- est.	Taxes.	Insur- ance.	Con- tingen- cies.	Or- ganiza- tion.	Total.
Land, . . . . .	1.0	2.5	.5	-	1.0	3.0	8.0
Track and roadway, . . . .	4.5	2.5	-	.5	5.0	3.0	15.5
Paving, . . . . .	2.5	1.5	-	.5	2.0	3.0	9.5
Bridges, . . . . .	4.5	2.5	-	.5	3.0	3.0	13.5
Transmission and distribution, .	3.5	2.5	-	.5	5.0	3.0	14.5
Underground conduits, . . .	10.0	1.0	-	.5	-	3.0	14.5
Buildings, . . . . .	5.0	2.5	.5	.5	3.0	3.0	14.5
Rolling stock, . . . . .	2.5	2.0	-	.5	1.0	3.0	9.0
Service equipment, . . . . .	4.0	2.5	-	.5	2.0	3.0	12.0
Power plant and substation equip- ment.	5.0	2.0	.5	.5	3.0	3.0	14.0
Miscellaneous and general equip- ment includes furniture and fix- tures.	.5	.5	.5	.5	3.0	3.0	8.0

## APPENDIX D.

## BAY STATE STREET RAILWAY COMPANY, MAINTENANCE CURVES FOR FISCAL YEARS 1893-1915.



## APPENDIX E.

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### STATEMENT OF LIVES OF PROPERTY USED BY BAY STATE ENGINEERS IN COMPUTING ANNUAL DEPRECIATION.

Years.

## Bridges, culverts and drains:

Steel bridges over railroads, . . . . .	25
Steel bridges over streams, . . . . .	30
Timber bridges over railroads, . . . . .	15
Timber bridges over streams, . . . . .	20
Timber culverts, . . . . .	20
Dry rubble culverts, . . . . .	25
Masonry and concrete structures, . . . . .	75
Vitrified pipe culverts and drains, . . . . .	30
Cast iron pipe culverts and drains, . . . . .	60
Catch basins, . . . . .	50

## Buildings:

Dependent upon material and type, . . . . .	15-75
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## Cars and car equipment:

## Bodies:

D. T. semis, . . . . .	20
S. T. semis, . . . . .	22
D. T. box, . . . . .	25
S. T. box, . . . . .	28
D. T. open, . . . . .	25
S. T. open, . . . . .	30
Express, . . . . .	20
Snow plows, . . . . .	18-20
Trucks, . . . . .	10-20
Motors, . . . . .	20
Controllers, . . . . .	25
Control cable (life of car).	
Air brake compressors, . . . . .	20
Registers, . . . . .	18
Arc headlights, . . . . .	8
Jacks and saws, . . . . .	25



Years.

## Distribution system:

## Poles: .

Iron, . . . . .	40
Cedar, . . . . .	20
Chestnut, . . . . .	16
Hard pine, . . . . .	12
Cross arms, . . . . .	10
Guys and anchors, . . . . .	16
Miscellaneous work on poles, . . . . .	15
Trolley, . . . . .	2-30
Overhead feeder, . . . . .	25-30
Underground cable, . . . . .	30
Submarine cable, . . . . .	10

Furniture, . . . . .	40
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## Miscellaneous equipment:

Horses, automobiles, wagons, etc., . . . . .	5-10
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## Paving:

Asphalt and asphaltina, . . . . .	15-20
Bitulithic, . . . . .	12-15
Bituminous macadam, . . . . .	10-18
Water bound macadam, . . . . .	8-15
Concrete and Hassam (very little near 25 years), . . . . .	12-25
Grouted brick on concrete base, . . . . .	15-25
Wood block on concrete base, . . . . .	20-30
Wood block on bridges, . . . . .	10-20
Plank on bridges, . . . . .	5
Granite (twice life of rail), . . . . .	20-60
Cobble and cobble mixed, same as rail.	

## Power plant equipment:

Boilers, water tube, . . . . .	25-30
Boilers, fire tube, . . . . .	20
Engines, . . . . .	30-40
Turbo-generators, . . . . .	20
Condensers, . . . . .	20-25
Pumps, . . . . .	12-20
Stokers, . . . . .	15
Heaters, . . . . .	25-30
Coal handling machinery, . . . . .	25
Piping, . . . . .	25
Generators, D. C., . . . . .	30-40
Alternators, . . . . .	25

Switchboards and wiring (average of generators served).

## Roadway machinery and tools:

Larger pieces of equipment only, . . . . .	15-25
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## Shop equipment:

Machine units, . . . . .	15-25
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Years.

## Signals and interlocking apparatus:

Handthrown signals, . . . . .	10
Automatic signals, . . . . .	14
Signal wire, . . . . .	15
Submarine signal cable, . . . . .	10
Underground signal cable, . . . . .	30

## Telephone and telegraph lines:

Telephone sets, . . . . .	10
Iron box telephone sets, . . . . .	14
Telephone wire, . . . . .	15
Submarine telephone cable, . . . . .	10
Underground telephone cable, . . . . .	30

## Track and roadway:

Rails, including all fastenings, . . . . .	10-35
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## Ties:

Paved track, same as rail (10-35 years).

Unpaved track, under good backfill, . . . . .	16
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Unpaved track, open to weather, . . . . .	12
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Bonds, same as rail to which they are attached.

Special work, . . . . .	6-20
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Track and roadway labor, same as rail or special work where labor was incurred.

Grading and ballast, not depreciated.

Underground conduits, . . . . .	50
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## THE BRISTOL AND NORFOLK RATE CASE.

*Notice of Bristol and Norfolk Street Railway Company relative to increase in rates of fare.*

DECIDED AUGUST 31, 1916.

ROBERT L. RYDER, for Bristol and Norfolk St. Ry. Co.	} for Selectmen of Stoughton.
CORNELIUS HEALY, Jr.,	
JAMES E. RILEY,	
GEORGE W. PRATT,	
JEREMIAH J. DESMOND, for Selectmen of Randolph.	

## REPORT.

On December 20, 1915, the Bristol and Norfolk Street Railway Company filed with this Commission, in compliance with section 20 of chapter 784 of the Acts of 1913, notice of a proposed increase in passenger fares, to take effect on January 20, 1916. As stated in this notice, the company proposes

(1) *To make the cash fare six cents for every ride within the limits of any fare zone between 6 A.M. and midnight.* — The regular cash fare at present is five cents, but between the hours of 6 and 8 A.M. and 4.30 and 6.30 P.M. passengers are allowed to ride between Holbrook depot and Stoughton square in both directions for five cents, although the regular fare would be ten cents. This special arrangement the company proposes to discontinue entirely.

(2) *To sell special school tickets at the rate of ten tickets for thirty cents to pupils entitled by law to half fare transportation.* — School tickets at present are sold at the rate of ten tickets for twenty-five cents.

(3) *When a special trip is run for the accommodation of passengers leaving Holbrook depot after midnight, to make the fare ten cents to the Randolph-Stoughton line and twenty-five cents to the corner of Turnpike and Page streets in North Stoughton.* — This is the present arrangement. The company, however, states that

it does not wish to obligate itself to furnish this after-midnight service "unless at least one passenger desires to be accommodated."

On January 10, 1916, the Commission suspended the operation of the new schedule until May 1, 1916, and later the time of suspension was extended, under chapter 24 of the General Acts of 1916, to September 1, 1916. A public hearing was held on March 29, 1916.

The Bristol and Norfolk Street Railway Company was organized on January 19, 1903, under sections 13 and 14 of chapter 112 of the Revised Laws, for the purpose of taking over the property and franchises of the Stoughton and Randolph Street Railway Company, which had been purchased at a receiver's sale. At about the same time it purchased the property and franchises of the Easton Street Railway Company, a company just beginning operation. Both transactions were supervised by the Board of Railroad Commissioners and a capitalization was approved "not exceeding the fair value of the railway property" as determined by an appraisal made at the time. In all, capital stock amounting at par to \$100,000 and coupon bonds amounting at par to \$75,000 were authorized. The various orders of the Board dealing with the matter were dated, respectively, February 10, May 12 and May 29, 1903. Only \$70,000 of the coupon bonds were eventually issued and the capitalization, except for floating debt, has since remained unchanged. On June 30, 1915, the liabilities were as follows: —

Capital stock, . . . . .	\$100,000
Funded debt, . . . . .	70,000
Notes payable, . . . . .	3,000
Miscellaneous accounts payable, . . . . .	3,084
Unpaid interest, . . . . .	42,000
Depreciation reserve, . . . . .	250
Profit and loss deficit, . . . . .	54,925

The road at present runs from Stoughton square to Holbrook depot in the town of Randolph and but 6.696 miles of single track are operated. Of this, 6.318 miles are owned and the remainder consists of trackage rights over lines of the Bay State Street Railway Company in the town of Randolph. The track purchased from the Easton Street Railway Company was abandoned in the latter part of 1906 and has not since been operated. In 1915 the combined population of the two towns served was but 12,223.



Since the company began operation it has not always earned its operating expenses and has continually failed to earn fixed charges. The following table shows the amounts by which its income in the various years has been insufficient to meet these charges: —

	Deficit.
1903, . . . . .	\$868 03
1904, . . . . .	4,612 80
1905, . . . . .	4,316 38
1906, . . . . .	4,204 49
1907, . . . . .	1,039 14 <sup>1</sup>
1908, . . . . .	3,892 16
1909, . . . . .	2,575 67
1910 (9 months), . . . . .	4,017 13
1911, . . . . .	2,719 39
1912, . . . . .	2,449 07
1913, . . . . .	3,490 97
1914, . . . . .	5,949 40
1915, . . . . .	4,446 44

The apparent surplus in 1907 is misleading. It seems that in that year an attempt was made by the bondholders to charge off the accrued interest of that year and what was due up to that date. One of the bondholders, however, finally refused to agree to this arrangement so that it was necessary to charge back the interest in the following year. But for this attempt a deficit would have been shown in 1907. In 1914 the road failed to earn operating expenses by \$2,077.37 and in 1915 by \$539.38.

It is true that having abandoned the track originally owned by the Easton Street Railway Company the owners of the property are not entitled to a return upon the capitalization representing the portion so abandoned. It is also true that the physical condition of roadbed, track and cars at the present time is very poor; but the earnings are so low that even if all these matters are taken into consideration it is obvious that the company is justly entitled to a larger revenue if it can be secured. The property is clearly a losing venture.

Practically the only objection raised by the remonstrants was to the elimination of the special arrangement under which a lower fare is now granted at certain hours of the day for the benefit of workingmen. The proposed new schedule would increase the fare now paid by these men from five cents to twelve cents, manifestly a very large increase and one which might

<sup>1</sup> Surplus.

mean a heavy burden to certain families. The company presented statistics showing that the number of persons who now avail themselves of this special rate averages but 70 or 75 per day. While the Commission doubts its authority to require the company to maintain special reduced rates similar to those now in force, it feels that the company, in the exercise of sound discretion in management, ought to consider very carefully the change which is proposed. The result, if this policy is carried out, might well be to compel certain families to change their place of residence, so that the actual net gain for the company would be insignificant. We strongly urge the company to consider the desirability of a less radical change. An increase in the present rate during these hours from five to seven cents would, we think, be likely to produce better results not only for the public but for the company itself.

#### ORDER.

*Notice of the Bristol and Norfolk Street Railway Company relative to increase of fares.*

It appearing that on January 10, 1916, an order was entered suspending until May 1, 1916, the rates and charges stated in the schedule specified in said order; and that said rates and charges were further suspended to September 1, 1916, by successive orders dated respectively April 24, 1916, and June 23, 1916; and

It further appearing that a full investigation of the matters and things involved has been had, and that the Commission on the date hereof has made and filed a report containing its findings of fact and conclusions thereon, which said report is hereby referred to and made a part hereof, — it is

*Ordered,* That the Bristol and Norfolk Street Railway Company be hereby notified that it may readjust the rates and charges on all its lines in accordance with its notice filed with the Commission on December 20, 1915, within thirty days of the date hereof, and upon not less than five days' notice to the Commission and to the general public, by filing at this office and by posting in a conspicuous manner in its waiting rooms and cars in the manner prescribed in section 20 of chapter 784 of the Acts of 1913, a printed schedule of its rates and charges thus readjusted.

It is

*Further ordered,* That the operation of the schedule filed by the Bristol and Norfolk Street Railway Company on December

20, 1915, be further suspended and that the use of the rates and charges stated therein be further deferred until the said printed schedule of readjusted rates and charges becomes effective in the manner above prescribed.

It is

*Further ordered*, That a copy of this order be filed with said notice at the office of the Commission, and a copy hereof be forthwith served upon the Bristol and Norfolk Street Railway Company.

By the Commission,

ALLAN BROOKS,  
*Assistant Secretary.*

AUGUST 31, 1916. [P. S. C. 1234]

## THE MASSACHUSETTS NORTHEASTERN RATE CASE.

*Notice of the Massachusetts Northeastern Street Railway Company of proposed changes in fares and fare limits upon its railway.*

DECIDED OCTOBER 14, 1916.

JOHN E. BENTON for the Massachusetts Northeastern Street Railway Company.

J. JOSEPH HENNESSEY for city of Lowell.

DANIEL J. MURPHY for city of Lawrence.

GEORGE E. RIX for Lawrence Chamber of Commerce.

J. H. LYON for town of Methuen.

DANIEL H. CASEY for Haverhill Board of Trade.

ALBERT E. WADLEIGH for town of Merrimac.

CHARLES T. CONGDON }  
HENRY DEAN } for the Town Farm Line section,  
OSCAR F. EICHLER } Methuen.

S. J. LeGRANDE }  
THOMAS ARMITAGE } for the Hampshire Road section, Methuen.  
HARRY ATKINSON }

CONRAD W. CROOKER for Municipal Officers' Association.

## REPORT.

On October 1, 1915, the Massachusetts Northeastern Street Railway Company notified the Commission of a proposed increase in passenger fares and modification of fare limits, to take effect November 1, 1915. Briefly, the changes proposed in this schedule are

(1) A general increase in the unit cash fare upon all lines from five cents to six cents and a similar change in the half-fare tickets for school children.

(2) The continuance of all other existing reduced fare tickets, but with an advance of 20 per cent in the price in each instance.

(3) The shortening, by .72 of a mile, of the fare zone between the corner of Main and Merrimac streets in Haverhill and Wilson's Corner, New Hampshire, making the new limit the Haverhill-Methuen town line.



(4) The introduction of a new fare zone in New Hampshire on the line between Lowell and Nashua.

(5) The discontinuance of a lap-over privilege between Saunders' Hill and the Plouf residence in Merrimac.

On October 21, 1915, the Commission suspended the operation of the new schedule until May 1, 1916, and later the time of suspension was extended, under chapter 24 of the General Acts of 1916, to September 1, 1916. At the request of the company this date was subsequently made October 15, 1916. Public hearings were held at this office on December 14 and 15, 1915, the Public Service Commission of New Hampshire sitting jointly with this Commission. A further hearing was held before this Commission alone on February 15, 1916, to consider certain motions affecting the disposition of the case within this Commonwealth.

#### HISTORY OF THE COMPANY.

The Massachusetts Northeastern Street Railway Company operates, in all, 128.31 single track miles, 82.44 being within Massachusetts and 45.87 within New Hampshire. Of this mileage it owns 125.70 miles, the remainder consisting of track-age rights over other railways. The system extends along the northern boundary of the Commonwealth, from Lowell and from Nashua, New Hampshire, to the sea at Newburyport, crossing the state line at nine different points and paralleling in a general way the course of the Merrimac river. In Massachusetts the company operates in the cities of Haverhill, Lawrence and Newburyport and in the towns of Amesbury, Dracut, Merrimac, Methuen, Newbury and Salisbury. It has lines reaching the centers of Haverhill and Lawrence, although the major portion of the local service of those cities is furnished by the Bay State Street Railway Company. Its cars are also carried into the heart of Lowell by the latter company, under an operating agreement, from a connecting point at the Lowell-Dracut line. Under a similar agreement Bay State cars are carried into the center of Newburyport by the Massachusetts Northeastern, which furnishes the local service in that city. Between Lowell and Nashua and between the cities along the Merrimac river the two systems have competitive routes, the Bay State routes, in general, being the more direct.

The Massachusetts Northeastern Street Railway Company was originally called the Haverhill and Southern New Hampshire Street Railway Company and was used as the medium

through which ten other street railway companies under common control and management were merged into one. Seven of these were corporations of Massachusetts, as follows: —

Amesbury and Hampton Street Railway Company.  
Citizens' Electric Street Railway Company.  
Haverhill and Amesbury Street Railway Company.  
Haverhill and Plaistow Street Railway Company.  
Haverhill and Southern New Hampshire Street Railway Company.  
Lawrence and Methuen Street Railway Company.  
Lowell and Pelham Street Railway Company.

The following three were corporations of New Hampshire: —

Haverhill, Plaistow and Newton Street Railway Company.  
Hudson, Pelham and Salem Street Railway Company.  
Seabrook and Hampton Beach Street Railway Company.

The date of the merger was April 1, 1913. At the same time a park owned by a Maine corporation, known as the Canobie Lake Company, was purchased and also a toll bridge over the Hampton river, between Seabrook and Hampton beaches in New Hampshire, then owned by a company known as the Granite State Land Company.

All of the above listed street railway companies, except the Haverhill and Amesbury and the Citizens' Electric, were organized, financed and built as a single system, between 1900 and 1902, by a holding corporation known as the New Hampshire Traction Company. The promoter of the enterprise was one Wallace D. Lovell, and it was commonly spoken of as the "Lovell system." The boundary line between the two states divided the system into eight distinct segments, five in Massachusetts and three in New Hampshire, and the title to each one of these segments was owned by a separate corporation, although all were under one centralized control and management. This arrangement was necessitated by the fact that there were, at the time, no laws in either state permitting the consolidation of companies of separate citizenship, even though physically connected. The system failed to show the earnings which had been anticipated, and in 1905 the New Hampshire Traction Company was dissolved by foreclosure and its assets were taken over by a new holding company organized in the form of a voluntary association and known as the New Hampshire Electric Railways. The stock of the Haverhill and Amesbury was acquired by this voluntary association in 1909 and the stock of the Citizens'

Electric in 1911. In 1913, permissive legislation having been obtained in both states (N. H. St. 1911, c. 94; Mass. St. 1912, c. 724), the ten companies were merged into one and the present name, Massachusetts Northeastern Street Railway Company, was adopted. All the common stock of this company is held by the New Hampshire Electric Railways.

#### INVESTMENT.

The outstanding capitalization of the Massachusetts Northeastern Street Railway Company on June 30, 1916, including short term notes, was as follows:—

Common stock,	. . . . .	\$1,500,000
Preferred stock,	. . . . .	665,000
Funded debt,	. . . . .	1,000,000
Notes payable,	. . . . .	411,000
		<hr/>
Total,	. . . . .	\$3,576,000

The total permanent investments were carried on the company's balance sheet at a book value of \$3,573,917, or approximately \$30,000 per mile of single main track.

Much of the present capitalization represents securities originally issued by separate companies, for the merger of 1913 was made upon the basis of an exchange of stock share for share, except in the case of the Haverhill, Plaistow and Newton, where the amount of new stock issued was but two-thirds of the original amount. The outstanding stocks and bonds of the ten merged companies had been issued, in all but one instance, under the supervision and with the approval of either the Massachusetts or the New Hampshire Commission. The exception was the Haverhill and Amesbury. The securities of that company issued prior to 1912 had been issued without supervision. In that year, however, the Massachusetts Board of Railroad Commissioners authorized the issue of \$230,000 additional stock and \$90,000 additional bonds upon the understanding that the company would cancel \$302,557 of indebtedness and unpaid interest amounting to \$56,941, which was done. It is not unreasonable to assume from this action of the Board an implied approval of the remaining securities.

Two of the other companies had, it seems, gone through receiverships prior to the merger of 1913. The Citizens' Electric Street Railway Company was the successor of the Newburyport and Amesbury Street Railway Company, which passed into

receiver's hands in 1898. At that time it had \$80,000 of stock outstanding, bonds amounting to \$358,000 and a floating indebtedness of \$140,952. The entire property was purchased by the Citizens' Electric for \$190,000 and stock of that amount issued, involving a reduction in liabilities of \$388,952. In the same way the Hudson, Pelham and Salem Street Railway Company was the successor of the Hudson, Pelham and Salem Electric Railway Company, which went into receiver's hands in 1907. As a result, the combined stock and bond issues were reduced by \$440,000 and \$146,636 of floating indebtedness was cancelled, the new capitalization receiving the approval of the New Hampshire Commission. A similar reduction was effected, as aforesaid, at the time of the merger, for but \$150,000 of Massachusetts Northeastern stock was issued in exchange for the outstanding stock of the Haverhill, Plaistow and Newton, then amounting to \$225,000. Under the provisions of chapter 724 of the Acts of 1912 the terms of the various purchases by which the merger was effected were approved by the Massachusetts Board of Railroad Commissioners (see 44th Annual Report, 1912, pp. 175-181), and it appears that an appraisal of all the properties was made at the time by Mr. E. K. Turner, the engineer of the Board, although the records of this appraisal are incomplete.

Since the merger of 1913, all additional shares of stock or bonds issued by the Massachusetts Northeastern Street Railway Company have been authorized by this Commission or its predecessor. It appears, therefore, that the outstanding stock and bonds of the company have, in effect, been approved by either the Massachusetts or the New Hampshire Commission and must be taken as representing, in the first instance, reasonable investment of capital. As was said in the Bay State case, recently decided: —

The general purpose of the so-called "anti-stockwatering" laws is to limit capitalization to honest and reasonable investment, dollar for dollar. When, after careful investigation, securities are approved under these laws as "reasonably necessary" for lawful purposes, investors have a right to rely upon the finding so made and the Commonwealth, in the absence of fraud or manifest mistake, can hardly be heard to say at a later date that the issue was excessive.

Indeed, aside from this fact, there is no evidence of inflation, for the capitalization per mile of single track is moderate, even when allowance is made for the fact that the company has no generating power station. In view of these circumstances, the



Commission has considered it unnecessary to make a detailed appraisal of the property in connection with the present proceedings. The system has, however, been examined by the Inspection Department of the Commission and found to be in good operating condition. This is particularly true of roadbed and track. Maintenance has not been neglected and in only one instance does it appear that any substantial amount of abandoned or superseded property is included among the assets. This exception is a power station, formerly used by the Citizens' Electric Company and abandoned in 1907, which cost when new, including the land upon which it stands, approximately \$65,000.

Notes payable, amounting at present to \$411,000 are in a different category from the stocks and bonds. They represent floating debt incurred without public supervision and originating in the period when there were ten separate companies. The claim is made that the Board of Railroad Commissioners, by permitting its assumption by the Massachusetts Northeastern when these companies were merged, in effect approved this indebtedness; but we cannot assent to this claim. The permission did not change the equities or obligations attaching to the debt, as between the company and its patrons, but the debt was assumed subject thereto.

The evidence, however, warrants the conclusion that the notes represent indebtedness incurred for proper purposes. The president of the company testified that it is "in large part not capitalizable, because representing operating deficits and money borrowed to pay interest" (Record, p. 83), and the returns of past years show that a substantial portion originated in this way. In view of the fact that two of the companies which were merged in 1913 had passed through receiverships, that indebtedness of the Haverhill and Amesbury amounting to nearly \$360,000 was cancelled in 1912, that the stock of the Haverhill, Plaistow and Newton was shrunk by \$75,000 in the process of consolidation, and in view of the moderate capitalization, including notes payable, of the entire system per mile of single track the legitimate character of this unfunded debt may reasonably be assumed. Its status is fairly covered, we feel, by the following paragraph from the Middlesex and Boston case (2d Report, P. S. C., p. 127): —

The petitioner's floating debt . . . seems to have been incurred either in the purchase of additions and in betterments to its property or as a result of operating losses and of obsolescence and depreciation. Manifestly, operating deficits not due to mismanagement are proper charges against

future profits, provided such profits may otherwise fairly be earned. But until the time has come for writing off such deficits by gradually absorbing them out of profits, they are a part of the outstanding debt upon which interest necessarily accrues and such interest ought to be paid from current income; otherwise the result would be a constant accretion of deficit. This doctrine was assented to by counsel on both sides at the hearing; and it was also apparently agreed that ten years would be a proper period within which to absorb a valid deficit of this kind.

It follows that the company should take steps, as soon as possible, to fund such portion of this debt as may properly be capitalized permanently and to absorb the remainder by yearly payments from income.

A word may be in place as to the investment of the present owners in the property. It appears that the funds for the construction of the so-called "Lovell system" were furnished by the bondholders of the New Hampshire Traction Company and that the present holding company, the New Hampshire Electric Railways, was organized to take over the interest of these bondholders upon the failure of the former company. Since its organization, the underlying capitalization of the system in stock, bonds and notes has been shrunk by about \$660,000 through a receivership and the process of consolidation, as above described. On the other hand, it appears that the Haverhill and Amesbury and the Citizens' Electric, the two companies which were not a part of the original "Lovell system," were acquired by the New Hampshire Electric Railways at comparatively low prices. For the stock and floating indebtedness of the Haverhill and Amesbury \$200,000 was paid. Allowing for the indebtedness subsequently cancelled, the \$200,000 purchased securities having a par value of \$350,000. In the case of the Citizens' Electric, stock of the par value of \$240,000 was purchased for \$180,000. The discounts at which these securities were acquired, however, are more than offset, so far as the entire property is concerned, by the shrinkage, as compared with the original investment, in the case of the so-called "Lovell system." It also appears (see below) that, since the purchase of the Haverhill and Amesbury and Citizens' Electric companies, it has been necessary to appropriate substantial sums from income for the rehabilitation of their properties.

#### INCOME.

The Massachusetts Northeastern has never been a paying property. With the exception of the Citizens' Electric and the

Haverhill and Amesbury, none of the companies included in the merger of 1913 ever paid a dividend. In the eleven years ended June 30, 1911, the Citizens' Electric paid dividends ranging from 5 to 8 per cent, the total thus disbursed being \$148,800, or an average yearly rate of 5.6 per cent. It is clear, however, that these dividends were paid at the expense of the property, for its physical condition at the time when the company was acquired by the New Hampshire Electric Railways was very poor. Because of this poor condition, dividend payments were suspended in 1911 and the management states that "since January 1, 1912, \$94,020 has been expended on repairs and replacements in addition to the regular maintenance outlays" (Record, p. 69). The Haverhill and Amesbury paid 4 per cent in 1893, 1894 and 1895, and 3 per cent in 1897, but dividends were suspended thereafter. As in the case of the Citizens' Electric, its physical condition became very poor, and the management states that \$223,351 has been expended in rehabilitation since its acquisition in 1909 (Record, pp. 69, 70).

Since the merger of 1913, the Massachusetts Northeastern has paid no dividends whatever upon its common stock of \$1,500,000. For the six months ended December 31, 1914, a 3 per cent dividend was declared upon the preferred stock, but no other payments have been made. Of the total issue of \$665,000 preferred stock, it should be said, \$415,000 was used in 1913 to retire a like amount of funded debt, thus reducing the fixed charges of the company.

The income account of the Massachusetts Northeastern for the past three years, ended, respectively, June 30, 1914, June 30, 1915, and June 30, 1916, has been as follows:—

	1914.	1915.	1916.
Operating revenue, . . . . .	\$699,109 77	\$674,818 90	\$705,770 79
Operating expenses, . . . . .	539,071 85	553,869 40	582,540 53
Net revenue, . . . . .	\$160,037 92	\$120,949 50	\$123,230 26
Other income, . . . . .	1,689 48	9,134 37	15,115 23
Gross income, . . . . .	\$161,727 40	\$130,083 87	\$138,345 49
Taxes, . . . . .	\$23,881 96	\$23,319 57	\$25,576 66
Interest on bonds, . . . . .	64,250 00	52,781 94	50,000 00
Interest on unfunded debt, . . . . .	44,781 66	33,661 67	23,554 95
	\$132,913 62	\$109,763 18	\$99,131 61
Surplus, . . . . .	\$28,813 78	\$20,320 69	\$39,213 88

It will be seen that the surplus over fixed charges in the past fiscal year amounted to less than 6 per cent upon the preferred stock, eliminating the common stock entirely from consideration, and that it was even less in each of the two previous years. Only \$3,329 was set aside for depreciation in 1916, an amount equaling but one-half of 1 per cent of the cost of the equipment, obviously a wholly inadequate charge.

#### MANAGEMENT.

Under instructions from the Commission, its accounting department made an examination of the books and records of the company covering a period of two years and nine months, beginning July 1, 1914, and ending March 31, 1916. All the vouchers for the period were carefully scrutinized. The department found the books well kept in accordance with the prescribed classification and discovered no important items which seemed open to criticism.

Inasmuch as the New Hampshire Electric Railways controls, besides the Massachusetts Northeastern, four other companies and all are under common management, the department was instructed to investigate with particular care the method of apportioning general administration and similar expenses, and also all dealings between the companies. The four companies under common control with the Massachusetts Northeastern are as follows:—

(1) *Dover, Somersworth and Rochester Street Railway Company*, a New Hampshire corporation with 20 miles of line, not connected with the Massachusetts Northeastern system and operating in the territory indicated by its title.

(2) *Rockingham County Light and Power Company*, a New Hampshire corporation supplying light and power in Portsmouth and furnishing, also, the electricity for the operation of the Massachusetts Northeastern and Dover, Somersworth and Rochester railways.

(3) *Kittery Electric Light Company*, a Maine corporation supplying light and power in Kittery and Eliot, Maine, and operating through the Rockingham County company.

(4) *Granite State Land Company*, a New Hampshire corporation, now practically without property except leases to certain lots of land at Hampden Beach.

The method of apportioning common expenses between the various companies is indicated by the following paragraphs from the statement made by the president at the public hearing:—



Every effort is made to maintain a fair division between companies of such common expenses; the salaries paid the officers and certain of the clerks and accountants are apportioned on the basis of the gross earnings in round amounts, the Kittery Electric Light Company's earnings being combined with those of the Rockingham company, and the Granite State Land Company omitted because it requires practically no attention from officers or accountants (Record, p. 50).

Services of all other employees have in the past been somewhat arbitrarily charged, though with the effort and intention of keeping a proper and fair division as between the separate companies, but at present the charges are based on a division of actual time, wherever possible or practicable, and for such employees as Claim Adjuster, Purchasing Agent, Pay-roll Clerks, etc., on the basis either of gross earnings or car-miles operated (Record, p. 51).

The accountants of the Commission reported that "an investigation of the methods of the company was sufficient to indicate that every effort was being made to properly allocate operating and other charges so that each company is bearing its own individual burden and the Massachusetts Northeastern Street Railway Company is not assuming any expenses that do not belong to it."

Certain supplies are sold at cost by the Massachusetts Northeastern to the Dover, Somersworth and Rochester and the Rockingham County companies, but in general the companies have their own storehouses and buy their own material. The Massachusetts Northeastern has, it seems, no further dealings with the other companies aside from the purchase of power from the Rockingham County company. This power is purchased in the form of alternating current at the rate of 1.4 cents per kilowatt hour, the railway operating and maintaining the substations and assuming all transforming and converting losses. Figuring in these additional items, the total cost for the 1915 year was about 1.75 cents per kilowatt hour. The price paid for the current seems relatively high, although it should be borne in mind that interest and depreciation charges on a generating station and transmission lines are saved. In the New Bedford and Onset case the Commission found (3d Report, P. S. C., p. 106) that the company was purchasing similar power from the New Bedford Gas and Electric Company "at a price per kilowatt hour varying from 1.1 cents to 0.95 cent, or a trifle less, according to the amount supplied in the course of the year." It is also true that the resulting cost of power per car mile is high in the case of the Massachusetts Northeastern, being 6.19 cents

in 1915 and 6.36 cents in 1916. The Commission, however, is unable to say that the Massachusetts Northeastern could secure its supply of power upon more advantageous terms in any other way. The company submitted evidence, including the report and testimony of a consulting engineer, intended to prove that power would cost it as much or more if it should build a steam generating station and manufacture its own supply. The character of the system and of its business is not, it seems, favorable to low power cost. It would be impossible to establish a tide-water station at any centrally located point, the grades on many of the lines are severe, a majority of the cars are comparatively large with four-motor equipment, and the load factor is very low. On Saturdays, Sundays and holidays in the summer season the load reaches a maximum far beyond the normal peak throughout the year. The contract under which the power is supplied, however, runs for a term of at least 10 and possibly 25 years with a provision for a possible increase in the unit price but with no provision for a possible reduction. While it cannot be said that the price is unduly high under prevailing conditions, the contract may in the future operate to prevent the company from securing a supply upon more favorable terms. In that event, it would be the duty of the Commission, in any proceedings involving rates or service, to prevent this burden from being imposed upon the patrons of the road.

The cars are operated with a reasonable measure of efficiency. The following table, introduced as an exhibit in the recent Bay State case, showed that the speed on the Massachusetts Northeastern in 1914 compared favorably with that on other large systems within the Commonwealth:—

Miles per Hour.

Boston and Worcester, . . . . .	16.82
Berkshire, . . . . .	11.61
Massachusetts Northeastern, . . . . .	11.55
Boston Elevated (excluding rapid transit lines), . . . . .	10.05
Springfield, . . . . .	9.86
Holyoke, . . . . .	9.76
Middlesex and Boston, . . . . .	9.59
Worcester Consolidated, . . . . .	9.45
Fitchburg and Leominster, . . . . .	9.18
Union (New Bedford), . . . . .	8.48
Bay State, . . . . .	8.35

Since the acquisition of the lines formerly operated by the Haverhill and Amesbury and the Citizens' Electric companies, the

present management has reduced the running time upon several routes. The testimony in the Bay State case from Haverhill and Lawrence, which are served by both the Massachusetts Northeastern and the Bay State systems, favored the former. The cars are, in general, well painted and in good repair and are all used. While much of the equipment is of a type which would hardly be selected at the present time, very few of the cars have been in service as long as fifteen years and the management has recently ordered a number of more modern semi-convertible cars. The company is fortunate in having trucks, in general, of a standard type. Barns, shops and store-rooms appear to be in good condition and well handled. Salaries are moderate and general and miscellaneous expenses comparatively low. In 1915 these expenses amounted to 9.73 per cent of operating revenues as compared with an average of 10.73 per cent for all the rail-ways of the Commonwealth.

Operating expenses for the year ended June 30, 1916, compared with the similar expenses for the preceding year, were as follows: —

	1915.	1916.	Increase.
Maintenance of way and structures, . . . . .	\$100,681 21	\$97,551 05	\$3,130 16 <sup>1</sup>
Maintenance equipment, . . . . .	60,668 44	58,093 88	2,574 56 <sup>1</sup>
Power, . . . . .	158,605 62	168,512 34	9,906 72
Conducting transportation, . . . . .	162,331 15	177,103 53	14,772 38
Traffic, . . . . .	5,924 31	8,161 17	2,236 86
General and miscellaneous, . . . . .	65,658 67	73,118 56	7,459 89
Totals, . . . . .	\$553,869 40	\$582,540 53	\$28,671 13

<sup>1</sup> Decrease.

Apart from additional car miles operated, this increase in expense was, it seems, due largely to an increase in wages which went into effect on October 1, 1915.

#### MAINTENANCE AND DEPRECIATION.

A table prepared by the accounting department of the Commission shows that the maintenance expenditures of the system for the ten years ended June 30, 1915, have amounted to the following percentages of operating revenues: —

	Per Cent.
1906, . . . . .	16.75
1907, . . . . .	21.11
1908, . . . . .	20.37

	Per Cent.
1909, . . . . .	20.78
1910 (9 months), . . . . .	25.96
1911, . . . . .	22.08
1912, . . . . .	18.26
1913, . . . . .	19.40
1914, . . . . .	19.65
1915, . . . . .	23.91
Average for 10 years, . . . . .	20.71

Considering the character of the system and the relatively low earnings per mile of track, this cannot be considered an excessive provision for maintenance. As already stated, the property has been well maintained and kept in first-class operating condition and to that end dividends have been sacrificed, since the present management assumed charge, a policy for which it is clearly entitled to commendation.

While, however, the property has been kept in good operating condition, there are important items which it has not been necessary as yet to replace, such as rails, cars, buildings and power apparatus. For the renewal of these items, which will ultimately be necessary, the company has set aside no fund, barring the wholly inadequate provision for depreciation on rolling stock which has been made in the past two years in conformity to the requirements of the Interstate Commerce Commission classification of accounts. The company is clearly entitled to set aside such a fund. It is, in fact, its duty to do so. As the Commission stated in the recent Bay State case (p. 54):—

. . . To rely, however, upon the mere hope that earnings in the future will increase sufficiently to supply the funds necessary when replacements become due is not only dangerous, as events in this case have demonstrated, but it is also unjust. Future patrons ought not, if it can be avoided, to be called upon to provide the funds necessary to replace property worn out in past service. If it proves that the car riders of the future can supply more revenue than is needed for a reasonable return, after meeting the costs which they themselves impose, they are entitled to the benefit of lower fares. The annual loss of property through wear and decay is a true part of the cost of operating and a proper recognition of this fact is essential if the future interests, both of investors and of the general public, are to be protected.

Precisely what provision should reasonably be made each year for depreciation it has not seemed necessary, upon the facts in the case, to determine, but certainly the amount should be substantial.



## THE NEED FOR ADDITIONAL INCOME.

From the evidence in regard to the history and present circumstances of the Massachusetts Northeastern Street Railway Company, as summarized above, the following conclusions may be drawn: —

1. That the present capitalization of the company in stock and bonds represents capital honestly and prudently invested in property which (allowing for replacements) still exists, and, with the sole exception of the abandoned power station at Newburyport, is still used for street railway purposes.

2. That the outstanding notes payable represent indebtedness incurred either for additions and improvements to the property or to meet deficiencies in income.

3. That the property has been well maintained and that the failure to provide for accrued depreciation has not been due to the payment of excessive dividends or other forms of mismanagement.

4. That the company is justly entitled to secure from the operation of its road an income sufficient, after caring for operating expenses, depreciation and taxes, to cover the interest on all funded and unfunded debt and to pay a fair return upon substantially the full par value of its outstanding stock. It is unnecessary to determine whether \$65,000 should be deducted for the abandoned power station in Newburyport as the amount involved would not materially affect the result. The company, however, must expect to write off the loss on this plant in the near future.

5. That the company is not now earning a fair return upon the capital honestly and prudently invested.

6. That the additional net income needed cannot be secured through more efficient management and operation, and that the company may properly increase its fares.

## THE PROPOSED INCREASE.

It remains to consider whether the increase proposed is just and reasonable. Assuming that the new rates would yield 15 per cent additional revenue, the total increase in earnings, including an allowance for the new zone on the Lowell-Nashua line, would amount to about \$115,000 on the basis of the traffic for the year ended June 30, 1916. In view of the experience with similar increases in fares upon other Massachusetts rail-

ways (see discussion of this subject in the Bay State fare case recently decided) this estimate is probably high. However, if additional revenue of that amount had been secured in the 1916 year, the net income, after deducting operating expenses and fixed charges, would have been sufficient for the payment of dividends of 6 per cent upon preferred and common stock, leaving about \$25,000 for depreciation needs and the retirement of floating indebtedness, an amount certainly not excessive and probably inadequate. Moreover, a company which has for so long a time gone without dividend payments and has, by this sacrifice, maintained its property in good operating condition, has an excellent claim to a return upon its common stock materially higher than 6 per cent. If the entire property, therefore, is to be regarded wholly as a unit for rate-making purposes, and a uniform increase may properly be made in the fare in every traffic zone, the proposed new schedule cannot be considered unreasonable.

The jurisdiction of this Commission, however, is limited to the portion of the property located within Massachusetts and the traffic thereon. While no evidence was introduced by the Company to show the relative earnings at the present time on various parts of its system, the returns filed during the period prior to 1913, when there were ten separate companies, demonstrate that the Massachusetts lines, taken as a whole, are more profitable than the New Hampshire lines. The situation is further complicated by the fact that the Massachusetts Northeastern serves certain sections of Haverhill and Lawrence, although the major portion of the local service of those cities is furnished by the Bay State company, which charges a 5-cent fare. If the new schedule as filed should be allowed to go into effect, the result would be a 6-cent fare upon certain of the lines radiating from the centers of Haverhill and Lawrence, and a 5-cent fare upon all others. It further appears that the Massachusetts Northeastern itself now wishes to continue the 5-cent fare upon each of the two zones of its route between Haverhill and Lawrence, in order that it may meet the competition of the Bay State line between the same two points.

It is true that the lines in Haverhill and Lawrence may be regarded as terminals of interurban routes, rather than as parts of local city transportation systems, for the original "Lovell system" was planned, built and operated from the beginning as an interurban enterprise. Counsel for the company correctly

stated the situation, we think, when he said that "the transportation of passengers wholly within city limits is merely incidental to its main business, which is the transportation of long-distance passengers from town to town." At the same time, the Commission is of the opinion that when an interurban road enters urban territory already served, in large measure, by another company and undertakes to provide local service within that territory, an obligation may fairly be implied, subject to reasonable limitations, not to charge more than the prevailing rate within such territory. It is also true that it has been a general policy of the Commission in other rate cases to make some distinction between the more densely and less densely populated sections of a system. In the Middlesex and Boston case, for example, the company was required to sell nine tickets for fifty cents in the cities of Waltham and Newton, and in the Bay State case much urban territory was exempted from the increase in fares.

The zones on the Massachusetts Northeastern system are comparatively long, as is illustrated by the following testimony from the president of the company (Record, p. 67):—

Excluding the beach sections, where only summer service is given, the average length of the fare sections on all divisions is 4.04 miles, which, on the basis of a six-cent fare, is at the rate of 1.48 cents per passenger mile.

The length of the present zones radiating from the centers of Haverhill and Lawrence is as follows:—

	Miles.
Haverhill to Merrimac line, . . . . .	4.99
Haverhill to Pine Street, Plaistow, . . . . .	3.75
Haverhill to Methuen-Salem line, . . . . .	5.94
Haverhill to North Street, Methuen, . . . . .	4.46
Lawrence to North Street, Methuen, . . . . .	4.57
Lawrence to Hampshire Road, Methuen, . . . . .	4.57
Lawrence to Methuen-Pelham line, . . . . .	5.79

In view of the length of these zones and the character of the system as a whole, the Commission does not feel that the Massachusetts Northeastern can fairly be required to retain the five-cent fare throughout the entire distance, in each instance, except so far as the necessity of meeting the competition of the shorter Bay State line between Haverhill and Lawrence makes it to its

own business interest to do so. It is well established that a company may, to meet competition, charge relatively lower rates upon certain lines, provided no higher rates are charged upon other parts of its system than would otherwise be permissible. The Commission is of the opinion, however, that the company should, by the sale of five tickets for 25 cents, maintain a five-cent rate upon such portions of the zones in question as are within a distance of about three and one-half miles from the centers of the respective cities. Precisely where the limit of the five-cent fare upon each of the zones is to be fixed should be governed by local conditions rather than by exact distance and may be left to be determined by conference between the company and the Commission. It should be said, also, that, so far as the zone between Haverhill and Plaistow is concerned, the authority of this Commission ends at the state line, which is about three miles at this point from the center of Haverhill.

The new zone which it is proposed to introduce in the route from Lawrence to Nashua is located entirely within the state of New Hampshire, and, therefore, does not concern this Commission. The proposed discontinuance of the lap-over privilege between Saunders' Hill and the Plouf residence in Merrimac, the company itself desires to abandon. No objection was offered at the hearings to the proposed shortening by .72 of a mile of the zone between the corner of Main and Merrimac streets in Haverhill and Wilson's Corner, at the state line, making the new limit the Haverhill-Methuen town line. The change seems reasonable to the Commission. The zone so shortened will still be 5.22 miles long.

With the exceptions above noted, the Commission finds that the changes proposed in cash fares, ticket rates and fare limits are just and reasonable. An order will be entered cancelling the rates and charges as stated in the schedule filed. The company is, however, authorized to file a new schedule containing the modifications recommended which, upon approval by the Commission and proper notice, will be allowed to become effective without further hearing thereon. After a trial of the new fares for a period of at least one year, if either the public or the company wishes to reopen the question for further consideration upon the submission of new evidence or arguments, it is at liberty to do so.



## ORDER.

*Notice of the Massachusetts Northeastern Street Railway Company of proposed changes in fares and fare limits upon its railway.*

It appearing that on October 21, 1915, an order was entered suspending until May 1, 1916, the rates and charges stated in the schedule described in said order; and that said rates and charges were further suspended under the provisions of chapter 24 of the General Acts of 1916, to September 1, 1916, and that this time, by an order dated August 29, 1916, was, at the request of the company, extended to October 15, 1916; and

It further appearing that a full investigation of the matters and things involved has been had, and that the Commission on the date hereof has made and filed a report containing its findings of fact and conclusions thereon, which said report is herein referred to and made a part hereof, it is

*Ordered,* That the Massachusetts Northeastern Street Railway Company be and is hereby notified and required to cancel the rates and charges and changes of fare limits stated in the schedule specified in said orders of suspension.

It is

*Further ordered,* That a copy of this order be filed with said schedule at the office of the Commission, and a copy hereof be forthwith served upon the Massachusetts Northeastern Street Railway Company.

By the Commission,

FREDERICK J. MACLEOD,

OCTOBER 14, 1916.

[P. S. C. 1135]

*Chairman.*

## ACCOMMODATIONS, FARES, RATES, SERVICE.

## RAILROAD RATES.

*Petition of certain residents of Lynn, employed at the United Shoe Machinery Company's plant at Beverly, for a reduction of the rates of fare between points in Lynn, upon the Boston and Maine railroad, and the plant of the United Shoe Machinery Company in Beverly.*

*Memorandum.*

At confereces with the parties interested and at a public hearing, the petitioners presented evidence that they formerly were sold a 54-ride ticket for \$4, good between the Shoe Machinery plant and all points in Lynn, but that this ticket had been withdrawn and a 60-ride monthly ticket substituted at the rate of \$4.40 from East Lynn, \$4.80 from Lynn, and \$5.15 from West Lynn. Both the 54-ride and the 60-ride tickets were good upon special trains that are run beyond Beverly station to the factories of the United Shoe Machinery Company. It appeared that the 54-ride tickets were withdrawn under authority of an order of this Commission made February 27, 1915 (see Railroad Passenger Rate Case, 3d P. S. C. Rep., p. 3).

At the conclusion of the public hearing and upon the suggestion of the Commission, representatives of the railroad company agreed to place on sale 60-ride tickets marked "Beverly or United Shoe Machinery" to be sold at the Beverly-Lynn rates of \$4.40 from East Lynn or Lynn and \$4.80 from West Lynn, and entitling the user to all of the privileges enjoyed by passengers between Lynn and Beverly stations and to the additional privilege of riding, upon the special morning and evening trains, to and from the United Shoe Machinery plant. In view of the fact that this arrangement has been put into effect and has met with the approval of the petitioners, it is unnecessary to discuss the few questions raised in the case. The only issue of any importance involved was the substitution of 60-ride tickets for the 54-ride tickets formerly issued. The 60-ride ticket was adopted by the several railroads upon recommendation of the Board of Railroad Commissioners, in 1912, which

also provided for the withdrawal of 54-ride tickets. The recommendation was made after thorough investigation and prescribed a form of ticket that is in use in other states, making ample provision for a full month's travel, but with the rate fixed upon the old 54-ride basis of cost. The 54-ride ticket withdrawn in the present case was one of but few that had been continued in use, as workingmen's tickets, after 1912.

It appearing that the matters dealt with in the petition have been satisfactorily adjusted, it is unnecessary to take any formal action.

For the Commission,

ANDREW A. HIGHLANDS,

AUGUST 10, 1916. [P. S. C. 1000]

Secretary.

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*Petition of the New York, New Haven and Hartford Railroad Company for approval of the making of a special minimum rate for a special train from North Easton to Easton and return.*

After consideration, it appearing that good cause has been shown, under the provisions of section 20 of chapter 784 of the Acts of 1913, for the making of a special minimum rate of \$25 for the operation of a special train by the New York, New Haven and Hartford Railroad Company from North Easton to Easton and return, as set forth in the petition, — it is

*Ordered*, That the Commission approve the making of a special minimum rate of \$25 for the operation of a special train by the New York, New Haven and Hartford Railroad Company, as specified above; this action in no wise to be considered as a precedent for future action of the Commission in similar cases.

Attest: ANDREW A. HIGHLANDS,

MARCH 13, 1916. [P. S. C. 215]

Secretary.

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#### RAILROAD SERVICE.

*Petition of patrons of the Boston and Maine Railroad residing in Littleton, Ayer, Fitchburg and other points on the Boston and Maine railroad west of Ayer, protesting against the stopping at Concord of the train due to leave Boston on the Fitchburg division at 5.10 P.M.*

This is a case in which the conflicting interests of Ayer and Fitchburg, on the one hand, and of Concord, on the other, in

the matter of passenger service on the Fitchburg division of the Boston and Maine railroad, have been brought before the Commission.

It appears that for many years the residents of these communities enjoyed independent express service in the late afternoon through the operation of two trains, due to leave Boston at 5.10 P.M. and 5.14 P.M., respectively. Following a general curtailment in passenger service on the Boston and Maine railroad, certain stations west of Concord, which otherwise would have been deprived of reasonable service at that time of day, were added to the schedule of the 5.10 P.M. train and certain stations east of Concord were added to the schedule of the 5.14 P.M. train. In the summer of 1915 a further change was made by stopping the 5.10 P.M. train at Concord, thus restoring express service to that community. It is this stop of which the petitioners complain.

When the additional stops were added to the 5.10 P.M. train, the advertised running time was not lengthened. From records submitted by the company it appears that, during the period from August 16 to September 9, 1915, this train arrived at Ayer once on time and 21 times late from one to 23 minutes, or an average of about 8 minutes. In the month of February, 1916, it was late leaving Ayer from one to 14 minutes, or an average of about 6 minutes, and arrived at Fitchburg from 2 to 29 minutes late, or an average of about 12 minutes. These records, it appears, are not exceptional but typical.

There is no good reason why the company should advertise a train to run on a schedule it knows, or should know, cannot reasonably be maintained, and the Commission suggests that, when the company makes its next change in its time-table, it should adjust the advertised schedule of this train accordingly.

In justification of the stop at Concord, the remonstrants and the company claim that Concord, because of the large number of commuters residing in that town, is entitled to express service from Boston at this hour in the afternoon, and that all of the delay to which the train in question has been subjected cannot fairly be attributed to the fact that a stop is made at that station.

On the other hand, the petitioners, who represent about seventy-five per cent of the total patronage of this train, feel that after the running time of this train had been increased by the stops added prior to June, 1915, the service should not have been further impaired by an additional stop at Concord in order to give the residents of that town better service than they had enjoyed before any curtailment of facilities was made.



It seems to a majority of the Commission that the balance of convenience is against the stopping of the 5.10 P.M. train at Concord. To rule otherwise would result in enhanced delay and inconvenience to the larger number of patrons of a through train to Greenfield, making important connections at Ayer, for the benefit of another community situated very much nearer Boston, to which as good a service as that given the petitioners is afforded by another train.

It is therefore

*Ordered*, That the Boston and Maine Railroad be hereby required to discontinue the stop at Concord on the train due to leave Boston on the Fitchburg division at 5.10 P.M., beginning July 10, 1916.

Attest:                      ANDREW A. HIGHLANDS,

JUNE 20, 1916.      [P. S. C. 1048]

*Secretary.*

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*Petition of residents of Great Barrington and others, in regard to passenger and freight service on the Berkshire division of the New York, New Haven and Hartford railroad.*

The petitioners, residents of Great Barrington and of other towns in Berkshire county, request the restoration of certain passenger service on the New York, New Haven and Hartford railroad between Great Barrington and Pittsfield, which was discontinued on October 1, 1915, and also seek to secure an improvement in the freight service to Great Barrington.

Great Barrington is the business center of the southern portion of Berkshire county and is located on the Berkshire division of the New York, New Haven and Hartford railroad, running from Bridgeport, Conn., to Pittsfield. From Van Deusenville, a few miles north of Great Barrington, a branch extends to a connection with the Boston and Albany railroad at State Line. The evidence shows that for many years Great Barrington was one of the freight terminals of this division, where engines were housed and trains were made up. This necessitated frequent switching operations, which caused no little annoyance to summer residents and visitors living near the tracks. Because of their complaints, and also because the railroad officials believed that the change would increase efficiency of operation, the terminal at this point was abandoned and freight trains were run through to Pittsfield and State Line. Coincident with this change, which took place on October 1, 1915, two passenger trains between Great Barrington and Pittsfield were discontinued. One of these

trains left Great Barrington at 7.43 A.M. and reached Pittsfield at 8.47 A.M. The other left Pittsfield at 6.15 P.M. and reached Great Barrington at 7.10 P.M.

The evidence showed that these two trains were a great convenience to the people of Great Barrington, and of southern Berkshire in general, in traveling to and from Pittsfield, which is their county seat, and in making connections at that point for Boston and other stations on the line of the Boston and Albany. Without these trains, it is impossible for them to reach Pittsfield, unless they use the slower trolley service, before 11.37 A.M., or to leave it after 3.20 P.M. It also appears that they have had the benefit of this or similar service for more than fifty years. The railroad company introduced evidence to prove that the discontinued trains did not yield any net revenue to the company, but expressed its entire willingness to restore the service if the Commission felt that existing facilities were inadequate. Upon consideration the Commission is convinced that a center of the size and importance of Great Barrington is fairly entitled to better train facilities than are now supplied and that the passenger service which the railroad company furnished for so many years of its own volition ought reasonably to be restored.

The case with respect to freight service is not so clear. The evidence shows, it is true, a marked deterioration in service since October last, when the change in terminals was made, and the petitioners are strongly of the belief that the change has been responsible for this deterioration. They wish the terminal restored to Great Barrington. On the other hand, the railroad company, while admitting the delays, assigns the responsibility to the freight handlers' strike in Boston last fall, to the recent extraordinary increase in traffic, which has congested the entire system and made embargoes necessary, and to the unusual storms of the winter. The Commission, after such study of the situation as it has been able to make, is of the opinion that the question cannot fairly be decided until traffic conditions upon the New Haven system have become more nearly normal. It therefore dismisses this portion of the petition for the present without prejudice, upon the understanding that it may be renewed again at some future time if the petitioners so desire.

It is therefore

*Ordered,* That the New York, New Haven and Hartford Railroad Company increase the present passenger service on its Berkshire division by operating two additional trains between

Great Barrington and Pittsfield, one leaving Great Barrington between 7.30 A.M. and 8 A.M. and the other leaving Pittsfield between 6 P.M. and 6.30 P.M.

By the Commission,

ANDREW A. HIGHLANDS,

MAY 2, 1916.

[P. S. C. 1267]

Secretary.

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STREET RAILWAY FARES.

*Petition of the Bay State Street Railway Company for approval of the giving of free transportation for certain charitable purposes.*

After consideration, — it is

*Ordered,* That under the provisions of section 18 of chapter 784 of the Acts of 1913, and in accordance with the memorandum of the Commission dated August 6, 1914, the Commission hereby approve of the giving by the Bay State Street Railway Company during the year 1916, of free or reduced rate transportation for charitable purposes to certain institutions and agencies specified in the schedule accompanying and on file with the petition, dated May 26, 1916.

Attest:                      FREDERICK J. MACLEOD,

JUNE 26, 1916.            [P. S. C. 1374]

Chairman.

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*Petition of inhabitants of the town of Grafton for reduction of fares charged by the Worcester Consolidated Street Railway Company.*

WEBSTER THAYER, for the petitioners.

F. H. DEWEY, for the Worcester Consolidated Street Railway Company.

The petitioners in this case, a committee representing inhabitants of the town of Grafton, allege that "the fares charged by the Worcester Consolidated Street Railway Company for the transportation of passengers through said town, to wit, two fares of five cents each for passage in one direction, are excessive, unjust and unreasonable" and request the Commission to "reduce said charges and fix and establish by order the fares which said company shall charge for the transportation of passengers through said town."

The line in question is one of many, operated by the Worcester Consolidated Street Railway Company, radiating from the center of Worcester and extending into the surrounding territory. The distance from Worcester city hall to the end of the line at Grafton Center is 8.90 miles. From the city hall one can ride 4.79 miles for five cents, 7.47 miles for ten cents and 8.90 miles for fifteen cents. Returning, five cents will carry a passenger 2.80 miles, the distance for ten cents is 4.77 miles and the distance for fifteen cents, 8.90 miles. In these figures no allowance is made for transfer privileges within the Worcester city limits. The portion of the line in the town of Grafton is 4.77 miles long and the fare in either direction for this distance is ten cents.

The petitioners base their request for a reduction largely upon the claim that the fares which they are paying are relatively higher than those prevailing upon other and similar lines radiating from the center of Worcester. The following table shows the maximum distances from the city hall on the various routes covered, respectively, by a ten-cent fare and by a fifteen-cent fare: —

ROUTE.	Ten Cent Cash Fare.	Fifteen Cent Cash Fare.
	Miles.	Miles.
Webster, . . . . .	8.41	13.30
Fitchburg (via Sterling), . . . . .	10.33	13.01
Northborough, . . . . .	7.63	12.64
Fitchburg (via Clinton), . . . . .	8.14	11.97
Southbridge, . . . . .	8.41	11.25
Holden, . . . . .	8.55	10.16
	10.16 <sup>1</sup>	
Woonsocket, . . . . .	7.91	9.89
Spencer, . . . . .	7.31	9.57 11.74 <sup>1</sup>
Grafton, . . . . .	7.47	
Westborough, . . . . .	6.04	7.98
Auburn Junction, . . . . .	8.67	—
Bramanville, . . . . .	7.32	—

<sup>1</sup> Tickets.

The tickets on the Holden route were established by order of this Commission on July 17, 1914 (2d. Rep. P. S. C. p. 223). The regular cash fare from Worcester to the end of the line at Jefferson Station, in the town of Holden, is fifteen cents, but by means of these tickets it is possible to ride between any part of



Holden and Worcester city hall for ten cents between the hours of 5.40 and 7.40 in the morning and between the hours of 4.55 and 6.55 in the evening. No transfer privileges in Worcester are given with these tickets. In the case of the Spencer route, the regular cash fare between the city hall and the end of the line is twenty cents, but by purchasing a ten-ride ticket for \$1.50 the same distance can be covered for fifteen cents between the hours of 6 and 8 in the morning and from 4.30 to 6.30 in the evening. On the Bramanville route, where the regular cash fare between city hall and the end of the line is ten cents, tickets without transfer privileges are sold at the rate of 8½ cents.

The inequalities in the above table of fares and distances are apparent on its face. Yet the fact that they exist is not conclusive evidence in favor of the petitioners. Similar apparent irregularities may be found upon most of the street railway systems of the commonwealth. Fares have not been established strictly on a mileage basis but have been influenced by other factors, such as the location of centers of population, town and city boundary lines and density of traffic. Cost of service, indeed, is by no means solely dependent upon mileage. In city territory, for example, where traffic is dense and the percentage of short-haul riding is large, it is possible to extend the limits of the five-cent fare much farther than upon country lines where traffic is light. An attempt to readjust street railway fares within the commonwealth upon a uniform mileage basis would mean revolutionary changes with results which would probably be, in general, unsatisfactory to all concerned.

It is also true that a table of maximum distances, such as the one given above, is apt to be misleading. To illustrate: If on a certain line the maximum distance for a ten-cent fare is 8 miles and for a fifteen-cent fare, 12 miles, it may be that the principal settlement in the fifteen-cent zone is at the 9 mile point, so that very few local riders have the benefit of the maximum distance. A situation similar to this, the company claims, exists on many of the routes radiating from the Worcester city hall. To quote the president of the company: —

I desire also to call attention to the fact that on the Fitchburg *via* Clinton line, Woonsocket line, Southbridge and Webster line, Northborough line, Spencer line and the Auburn Junction line, in fact upon substantially all the suburban lines except the Grafton line, there are very few persons living in the vicinity of the 10 cent fare limit. Consequently, if that fare limit is extended for a considerable distance on those lines into the country, it does not materially affect the income of the street

railway company, as the through passengers — most of those lines carrying such passengers — would pay the fare anyway. But in the case of the Grafton line, there being a large settlement and many people living there who consequently use the cars, if the fare was reduced to 10 cents for such passengers, it would result in a very considerable loss for the street railway company and give to persons located at that point a privilege and advantage that is not accorded to any considerable number of people on any other suburban line.

It is obvious that, if the Grafton line did not end at Grafton Center, the 15 cent fare limit might be placed at a point more nearly conforming to the similar distances on other routes without any real benefit to the people living at the Center.

The Worcester Consolidated Street Railway Company paid dividends of  $5\frac{1}{2}$  per cent on its common stock in the year ended June 30, 1915, and dividends of 5 per cent. in the year ended June 30, 1916. In this case no attempt was made, either by the company or by the petitioners, to segregate the investment in the Grafton line and apportion revenues and operating expenses so that the financial results from the operation of the line might be determined with approximate accuracy. It was claimed by the petitioners, however, that the line is one of the better paying suburban routes and such evidence as the company presented was not in conflict with this conclusion. The following table, showing the population in 1915 of the towns in the vicinity of Worcester gives ground for the belief that Grafton furnishes a larger volume of traffic to the company than the great majority of these towns:—

TOWN.	Population, 1915.
Clinton, . . . . .	13,192
Grafton, . . . . .	6,250
Spencer, . . . . .	5,994
Westborough, . . . . .	5,925
Millbury, . . . . .	5,295
Oxford, . . . . .	3,476
Leicester, . . . . .	3,322
Auburn, . . . . .	3,281
Sutton, . . . . .	2,829
Shrewsbury, . . . . .	2,794
Holden, . . . . .	2,514
Charlton, . . . . .	2,213
Northborough, . . . . .	1,797
Sterling, . . . . .	1,403
West Boylston, . . . . .	1,318
Boylston, . . . . .	783

The Commission knows of no uniform and inflexible rule that may be applied with general public advantage in cases like this, where comparative street railway fares are involved. The factors which must be taken into consideration are so numerous and varied that it is necessary to judge each particular case upon its individual merits and to determine the equities of the situation, not by any hard and fast standard, but by the exercise of broad judgment and discretion. In the case now pending, after a careful consideration of all the circumstances, the Commission is of the opinion that the people living in Grafton Center are justly entitled, in comparison with the other towns surrounding Worcester, to somewhat lower fares than they are now receiving and that an adjustment by means of a special ticket arrangement, upon the analogy of the Commission's order in the Holden case, would be equitable in the present case. As the company, after conference with the Commission, has agreed to furnish special tickets at a rate of ten cents each, good between the hours of 6.00 A.M. and 8.00 A.M. and between the hours of 4.45 P.M. and 6.45 P.M., for the use of its regular patrons traveling between any part of Grafton and Salem square in Worcester, it is unnecessary to enter any order at this time, and the petition is therefore placed on file.

For the Commission,

ANDREW A. HIGHLANDS,

DECEMBER 21, 1916.

[P. S. C. 974]

Secretary.

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#### STREET RAILWAY TRANSFERS.

*Petition of the Boston Elevated Railway Company for approval of changes in free transfer privileges in connection with the opening of South Station Under of Dorchester tunnel in the city of Boston.*

After consideration, — it is

*Ordered,* That the approval of the Commission be hereby given to the establishment by the Boston Elevated Railway Company of additional free transfer privileges and changes in existing privileges in connection with the opening for use of South Station Under of Dorchester tunnel as follows: —

At South Station Under of Dorchester tunnel

(a) Transfer checks to be issued from inbound Dorchester avenue or Summer street extension cars to South Station Under westbound.

(b) Transfer checks to be issued from outbound (southbound) Atlantic avenue cars to South Station Under westbound, but only to passengers paying fare in cash to the conductor.

(c) Transfer checks to be issued from South Station Under eastbound transferring eastbound passengers on trains in the Dorchester tunnel to surface cars running eastbound via Summer street to South Boston or Dorchester, and on northbound Atlantic avenue cars, it being understood that passengers giving such checks for fare on Atlantic avenue cars are not to be given checks for further transfer.

It is

*Further ordered*, That so much of the petition as relates to the discontinuance of the issuance of checks for transfer between surface cars and Washington station of Dorchester tunnel and the Summer or Winter stations of the Washington street tunnel be reserved for further consideration by the Commission.

Attest: ALLAN BROOKS,

NOVEMBER 29, 1916.

*Assistant Secretary.*

Additional transfer privileges by the Boston Elevated Railway Company were approved as follows:

Boston, November 29, 1916 — temporary privileges in connection with removal of cars from Washington street between Franklin and Boylston, at Beach Street station on inbound cars, Harrison avenue at Beach street to northbound elevated trains, southbound to cars on Harrison avenue, Essex and Washington streets; at Summer street station from inbound Dorchester avenue or Summer street cars looping via Federal, Franklin, Hawley and Summer streets; at Winter station or Washington street station to cars running east or south via Franklin, Hawley and Summer streets. [P. S. C. 1598]

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STREET RAILWAY SERVICE.

*Circular.*

*Sent to the operating street railway companies.*

Chapter 259 of the General Acts of 1916 reads as follows: —

SECTION 1. All street railway companies, now existing or hereafter established, shall furnish the public with full information, by notice posted for seven consecutive days prior to the date when the same are to take effect in the cars on the lines affected, of any intended change in the running



of cars, or the discontinuance of any line, or any change in the general public service of said companies.

SECTION 2. The public service commission shall give notice to all such companies of the provisions of section one.

SECTION 3. This act shall take effect on the first day of July in the year nineteen hundred and sixteen.

In accordance with the requirement of the above act, the Commission calls your attention to the provisions of section one thereof.

By order of the Commission,

ANDREW A. HIGHLANDS,

JULY 25, 1916. [P. S. C. 1049-J]

Secretary.

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*Petition of Representative James E. Odlin, of Lynn, concerning need of installation of stopping post on the Bay State street railway near the corner of Brookline and Brook streets in the city of Lynn.*

*Memorandum.*

A hearing was set down in this matter to be held on November 24, 1916. Prior to the hearing the Commission was advised that the stopping post desired by the petitioner had already been installed by the company.

The case is therefore placed on file.

Attest: ANDREW A. HIGHLANDS,

NOVEMBER 24, 1916. [P. S. C. 1487]

Secretary.

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*Petition of the mayor and board of aldermen of Chelsea relative to the operation of the Washington avenue line of the Bay State Street Railway Company over the tracks of the Boston Elevated Railway Company, through the East Boston tunnel, to Bowdoin square in the city of Boston.*

The petitioners desire that the Washington avenue line of the Bay State Street Railway Company be diverted at Bellingham square in the city of Chelsea to the tracks of the Boston Elevated Railway Company and operated by way of the Meridian street line in East Boston and the East Boston tunnel to Bowdoin square, or Scollay square, in the city of Boston. The Washington avenue line at the present time is routed from

Bellingham square over the surface tracks of the Bay State and Boston Elevated companies by way of the Chelsea bridge and Charlestown to the North station, and thence by the Tremont street subway to Scollay square. Patrons of this line may now obtain through service over that route upon payment of a five-cent fare, or may obtain an eight-cent ticket which will permit them, by transfer to the cars of the Boston Elevated company, to reach all parts of the Boston Elevated system.

Under this arrangement, citizens residing in that part of the city of Chelsea which is served by lines of the Bay State company, who desire to reach Boston, must either travel over a circuitous route which passes through narrow and crowded streets and over three drawbridges, with consequent delays and interruptions of service, or must pay an eight-cent fare, with the added inconvenience of making a transfer at Bellingham square. As was pointed out in the report made to the General Court two years ago by the Joint Board, consisting of the Public Service Commission and the Boston Transit Commission, it seems unjust that the people of Chelsea should be subjected to the delay and annoyance incident to the operation of the present through service, and should be compelled to "pay more than one fare to have access to the various parts of the Boston Elevated system, when many other communities at greater distances from Boston enjoy much greater privileges." [2d P. S. C. Rep., pp. 403-425]

In order to remedy this situation, repeated efforts have been made to secure the construction of a separate tunnel between Chelsea and Boston, but this project has not up to the present time received the favorable consideration of the General Court. The only other plan, under the present system of dual street railway operation, which would seem to promise substantial relief for the inequalities of existing transportation facilities in the city of Chelsea is the one presented in this petition for the operation of cars of the Bay State Street Railway Company over tracks of the Boston Elevated Railway Company in East Boston to and through the East Boston tunnel to Scollay square or Bowdoin square. This plan, however, must be considered in its relations to the whole problem of service upon the various lines using the East Boston tunnel. For that reason this petition was heard jointly with the petition of Representatives John J. Kearney and Edward I. Kelley and other residents of East Boston relative to service on the Boston Elevated railway between East

Boston and Boston, upon which petition a report and order were issued by the Commission on July 13, 1916 [P. S. C. 1313]. Reference is made to the report in that case for a detailed discussion of present operating conditions and of the various changes ordered by the Commission in present equipment, facilities and service in the East Boston tunnel and upon the lines of the Boston Elevated Railway Company in East Boston.

The diversion of the Washington avenue line to and over the tracks of the Boston Elevated Railway Company, as requested by the petitioners, and the operation of this line on its present headway would involve the running of six additional cars an hour during normal hours of travel and fifteen additional cars an hour during rush hours, through the East Boston tunnel. The operation of these cars, in addition to those required by the Boston Elevated Railway Company in order to furnish a reasonable service upon its lines in East Boston, would be likely, under present methods of operation, to overtax the facilities of the East Boston tunnel and to prevent the Boston Elevated company from giving satisfactory service to its own patrons. It is to be remembered that the residents of East Boston are dependent upon the facilities in the East Boston tunnel for all street railway service between East Boston and Boston, that this tunnel was built by the City of Boston primarily for their accommodation, and that the interest upon its cost is, in part, a direct burden upon the tax payers of the city. However desirable, therefore, it may appear to furnish the residents of Chelsea with transportation to Boston by way of the Boston Elevated tracks and the East Boston tunnel, as well as over the present route by way of Charlestown and Tremont street subway, it does not seem reasonable that such facilities should be given at the expense of an impairment of the service, which is already inadequate, to points in East Boston.

While the Commission would not be warranted under existing conditions of transportation in the East Boston tunnel in taking affirmative action upon this petition at this time, we are hopeful that the radical changes in service and facilities which are provided for by the Commission in the order already referred to, and which we hope may all be effected within a year from this date, will result in securing such an improvement of service and expansion of facilities on the lines now using the East Boston tunnel that the petition of the board of aldermen of Chelsea now under consideration may properly be renewed at that time.

It should be pointed out, however, that if, through the operation of multiple-unit trains and the other improvements ordered by the Commission, the capacity of the East Boston tunnel and of the surface tracks of the Boston Elevated company in East Boston shall hereafter prove sufficient to permit of the operation of the service requested by the petitioners, the complications growing out of the dual ownership of lines on which it is desired to inaugurate a joint service, for a single five-cent fare, will still remain to be settled. The difficulties of this general problem are described in the report of the Joint Board already referred to, and in the report on metropolitan transportation made to the General Court by the Public Service Commission last year (3d P. S. C. Rep., p. 392). As pointed out in these reports, the successful solution of this problem, unless there is resort to some form of public ownership, is wholly dependent upon the consent of the Boston Elevated Railway Company. Heretofore there has seemed to be comparatively little prospect of such action, but the attitude indicated at the conference and hearing on this petition by representatives of the companies encourages the hope that, if the operating difficulties heretofore referred to can be satisfactorily met, some method will be found for the adjustment of the fare problem in a manner consistent with the public interest and equitable and advantageous to both companies.

If at a later time surplus facilities are available in the East Boston tunnel, it will be in the interest of the Boston Elevated company that these should not remain idle but should be made a source of additional revenue to the company. Tunnels and rapid transit lines which are used merely for the operation of single unit cars or for a purely local service represent a large economic waste. In order that they may not be a financial burden upon the operating system and may at the same time render the largest measure of public usefulness, there should be the fullest possible utilization of their facilities by providing ample train service, not only sufficient for local needs of transportation, but adequate to accommodate the travel from a large outlying territory. If the East Boston tunnel, as the result of the improvements described in the Commission's order referred to above, can be utilized so as to accommodate, without detriment to the service in East Boston, additional travel, not only from Chelsea, but from Revere Beach and other points north and east of Boston on the Bay State system, a satisfactory solution will be found for some of the most pressing problems of street railway transportation in the metropolitan district.



In view of the foregoing considerations, — it is

*Ordered*, That the petition be dismissed without prejudice to any action which may hereafter be taken by the Commission upon any petition covering the same subject matter which may be filed by the petitioners, or other interested parties, after the changes heretofore ordered by the Commission in the present methods of operation in the East Boston tunnel have been effected.

Attest:                   ANDREW A. HIGHLANDS,

JULY 21, 1916.       [P. S. C. 1314]

*Secretary.*

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*Petition of residents of Dedham relative to through car service from the terminus of the Bay State street railway in Oakdale, in the town of Dedham, to the Forest Hills station of the Boston Elevated railway in the city of Boston.*

At the public hearing on the above petition, it appeared that the Bay State Street Railway Company operates a car on a thirty-minute headway between Oakdale, in the town of Dedham (via Boyden square) and the corner of Grove and Washington streets in that part of Boston known as West Roxbury. At this point it connects with two lines of cars operated by the Boston Elevated Railway Company to its Forest Hills station in Boston. Passengers going to or from Boston, by the way of the Oakdale line, transfer at this connecting point between the cars of the two companies, whereas passengers from Walpole, Norwood and Dedham Center go through to Forest Hills, without transfer, in the cars of the Bay State street railway.

The service furnished by the Boston Elevated railway through this transfer point during normal hours of the day is a ten-minute service, made up of a twenty-minute line between Forest Hills and the corner of Spring and Center streets and the twenty-minute Walpole and Dedham Center line, above referred to; but during rush hours additional service is furnished between Forest Hills and the corner of Grove and Washington streets.

The petitioners complain that, because of this transfer at the corner of Grove and Washington streets to and from the Oakdale cars, they are often subjected to unnecessary delays and much inconvenience, especially coming from Boston, since, if they miss the connection, they are at times compelled to wait as much as a half hour for the next car. They therefore ask that the Oakdale cars be operated through to Forest Hills over the track of the Boston Elevated company, just as those of the Dedham Center-Walpole line are now operated.

The Bay State company submitted counts, taken for one week, of the riding on the Oakdale car, which showed that the average number of revenue passengers per trip, including transfers, was about eight in each direction. These figures do not include passengers carried between the junction of Washington and Grove streets and the Dedham-Boston line (a distance of 1,700 feet), from whom the Bay State company received no revenue.

The Boston Elevated company contends that it is now running all the cars between this transfer point and Forest Hills that the patronage calls for and that to be compelled to haul these Oakdale cars to Forest Hills would not only place an additional burden upon it, which it is in no condition to assume, but would require it to render an additional service for which it would receive no additional revenue.

On the other hand, the petitioners contend that if cars on this Oakdale line were run through to Boston on a twenty-minute headway, the service would be so much better than at present that a great many more people would patronize the line; but whether sufficient additional patronage would be obtained to warrant this change is problematical.

In view of all the facts in this case, the Commission feels that it would not be justified at this time in requiring the through service desired. Considering the shortness of the Oakdale line, however, and the infrequency of the service upon it, the Commission has taken up with the Bay State company the advisability of operating the line on a twenty-minute headway, especially during the morning and evening rush hours, and this service will be put into effect for an experimental period. The cars will be run on a schedule providing for a close connection with the less crowded Spring and Center street cars of the Boston Elevated at the junction of Grove and Washington streets. These cars now run on a twenty-minute time. This change may cause some slight inconvenience to passengers transferring at Boyden square, but it is believed that this inconvenience will be greatly outweighed by the benefits to be derived by the more frequent service and the better connections at Grove and Washington streets.

The petition is therefore dismissed.

By the Commission,

ANDREW A. HIGHLANDS,

NOVEMBER 11, 1916.

[P. S. C. 1300]

*Secretary.*

*Petition of the Roxbury Board of Trade relative to transportation facilities furnished by the Boston Elevated railway and the Bay State street railway in the Roxbury district of Boston.*

*Memorandum.*

This petition was heard jointly with the investigation of transportation facilities and transfer privileges at the Dudley street terminal of the Boston Elevated Railway Company made under the provisions of chapter 61 of the Resolves of 1915. Upon this Resolve the Commission has this day made a report to the General Court, and has also issued an order (P. S. C. 1020). As the subject matter of this petition was considered in said report and order, no separate action thereon is deemed necessary.

It is therefore

*Ordered*, That the petition be placed on file.

Attest:                   ANDREW A. HIGHLANDS,  
JANUARY 26, 1916.   [P. S. C. 889]                   *Secretary.*

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*Petition of patrons of the Boston Elevated Railway Company for the restoration of the line of cars formerly operating between the South and West End districts of Boston.*

*Memorandum.*

Previous to May 13, 1916, the Boston Elevated Railway Company operated the so-called Belt Line between the South End and West End districts of Boston. This line ran from Grove Hall via Warren, Washington, Milk, Congress, State, Devonshire, Washington, Hanover, Portland, Chardon, Green, Chambers, Cambridge, Charles, Boylston, Dartmouth and Tremont streets, to Roxbury Crossing and return on a ten-minute headway. As this line was over sixteen miles in length for the round trip, and was operated over many congested city streets, it was almost impossible for it to maintain anything like schedule time, and set-backs were constantly required, especially during the winter season.

On May 13, 1916, the company discontinued this line and in place thereof operated a line from Grove Hall via Warren, Washington and Summer streets to the South station, and two lines each on fifteen minute intervals to the Scollay Under station of the East Boston tunnel, one from Roxbury Crossing

via Tremont, Dartmouth, Boylston, Charles and Cambridge streets, and the other from Lenox street via Tremont street, Northampton street, Columbus avenue, Massachusetts avenue, Huntington avenue, Boylston, Charles and Cambridge streets. A through line was also operated between Cambridge and East Boston by way of Cambridge street and the East Boston tunnel, and the surface line from River street, Cambridge, to Hanover street by way of Cambridge street and Bowdoin square was discontinued. As a result of these changes the service from the West End and Charles street to the south and west was increased, and the regularity of operation was improved. The direct service from Charles and Cambridge streets to Washington street points was, however, discontinued, so that passengers using the Cambridge-East Boston line were obliged to make one transfer and passengers using the other lines in the West End district were obliged to make two transfers in order to reach points on Washington street.

When the new service was installed it was found that the rerouting of the Belt-Line cars through the East Boston tunnel extension to the Scollay Under station, where there are no facilities for looping back such cars, interfered with the efficient use of the East Boston tunnel. The Commission in its order of July 13, 1916, upon certain petitions relative to service on the Boston Elevated railway between East Boston and Boston, called attention to this situation and stated that "these lines should therefore be removed from the tunnel and diverted to another route as soon as such alternative route is fixed by the Commission, after hearing upon a petition now pending for the restoration of the service formerly rendered between the South and West End districts of Boston." Moreover, the diversion to the East Boston tunnel extension of all surface lines formerly operated in the West End district caused great annoyance and inconvenience to the residents of that district. In order to relieve these conditions, the company, after conference with the petitioners and the Commission, rearranged its service through Charles and Cambridge streets by discontinuing the service formerly operated to the Scollay Under station, and by operating a line from Roxbury Crossing via Tremont street, Dartmouth street, Huntington avenue, Boylston street, Charles street, Cambridge street, Court street, Cornhill, Washington street, Franklin street and return via Federal street and Adams square.

In order to provide for further improvement of service in the



West End district, the company intends to put into immediate operation a line from Park square via Charles street, North Charles street, Leverett street, Brighton street, North station, Federal street, South station and Summer street extension, which will provide direct connection between Charles street and both the North and South stations, as well as the down town district. The situation, therefore, calls for no further action by the Commission at this time, and the petition is placed on file.

By the Commission,

ANDREW A. HIGHLANDS,

DECEMBER 30, 1916.

[P. S. C. 1388]

Secretary.

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*Petition of citizens of Winchester for the establishment of through car service on the Bay State street railway and the Boston Elevated railway between Winchester and Harvard square, Cambridge.*

On July 22, 1914, the Commission, upon the petition of residents of Winchester that the cars of the Bay State street railway operated from that town to Arlington be continued to the subway of the Boston Elevated railway in Cambridge, recommended that the Boston Elevated Railway Company and the Bay State Street Railway Company co-operate in bringing about the rearrangement of service requested by the petitioners. Pursuant to the recommendation, an agreement was entered into for the operation of this service but the companies were unable to obtain from the Town of Arlington locations for the necessary track connection between the lines of the two companies.

The authority of the Commission in relation to the establishment of through routes and transportation on street railways was enlarged by chapter 137 of the General Acts of 1916, amending section 25 of chapter 784 of the Acts of 1913, and the present petition is brought under the provisions of that section as amended.

It appearing, after notice and public hearing and further consideration, that there is no satisfactory through route for the transportation of passengers between Winchester and the Harvard station of the Cambridge subway, and that the lines of the Bay State Street Railway Company and the Boston Elevated Railway Company could be made to form a continuous or con-

necting line of transportation between said points by the construction of a connecting track in the town of Arlington, and that public convenience and necessity require the establishment of the through route for which the petitioners ask, — it is

*Ordered*, That the Commission hereby require the establishment by the Bay State Street Railway Company and the Boston Elevated Railway Company of a through route for the transportation of passengers between Winchester and the Harvard station of the Cambridge subway.

By the Commission,

FREDERICK J. MACLEOD,

OCTOBER 14, 1916.

[P. S. C. 1407]

*Chairman.*

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*Petition of the selectmen of Huntington, Blandford, Russell, Lee and Westfield, and boards of trade of said towns relative to the opening for public travel of the Lee-Huntington line of the Berkshire Street Railway Company.*

The petitioners request the Commission to order the Berkshire Street Railway Company to open for public travel the line constructed under the provisions of chapter 601 of the Acts of 1910, between the towns of Lee and Huntington. By the provisions of that act the New York, New Haven and Hartford Railroad Company was authorized to purchase the capital stock of the Berkshire Street Railway Company upon condition that the latter company should construct and operate certain designated extensions of its existing lines, including "a line of street railway between some convenient point on the line of railway in the town of Huntington and some convenient point on the line of the Berkshire Street Railway Company."

By the terms of the act all the extensions named therein were required to be completed before the first day of January, 1913, unless the Board of Railroad Commissioners, for cause shown, should authorize an extension of time for the completion of any of such railway lines. It was further provided that the act should become effective upon the written acceptance thereof by the New Haven and Berkshire companies, and upon the filing of a bond by the latter company in the penal sum of two million dollars, conditioned upon the completing and opening for use within the time provided for, of all the extensions specified in

the act. The act was duly accepted by both companies and the required bond was given.

Locations for the Huntington extension were approved by the Board of Railroad Commissioners on August 16, 1912. The route authorized extended from a connection with the main line of the Berkshire Street Railway Company in East Lee through the towns of Becket, Otis and Blandford to a connection with the line of the Springfield street railway in the town of Huntington. By an order of the board dated December 24, 1912, the time for the construction of this line was extended to January 1, 1914. No further extension of time has been granted by the Commission or requested by the company.

The entire line, which is 23.86 miles in length, was nearly completed three years ago. The grading was finished, the track was laid, the ballast distributed and most of it put in place, and much of the track was surfaced. The work was then suspended, and no attempt was made to open any portion of the line for public travel until November 18, 1915, when the company applied to the Commission for authority to operate a section of the line from its connection with the company's main line in the village of East Lee to the Phelps Farm Crossing, in the town of Otis, a total distance of 12.54 miles. A certificate of operation for this section of the line was granted by the Commission on December 13, 1915.

Soon afterwards informal complaint was made to the Commission because of the failure of the company to operate the entire line. At the request of the company, the complainants agreed that the Commission should defer action upon the complaint until an opportunity was afforded to reach an adjustment by means of direct negotiation between the company and representatives of the communities affected. These negotiations apparently elicited nothing from the company except certain vague statements as to what might be done in the indefinite future. The company, however, on June 13, 1916, petitioned the Commission for authority to operate an additional section of the line from the Phelps Farm Crossing in the town of Otis to North street in the town of Blandford. The Commission, after an investigation by its inspection department, authorized the company, on August 21, 1916, to operate between the Phelps Farm Crossing and a point known as Algeree Four Corners, in the town of Otis, a distance of about 3,800 feet, but refused to issue a certificate of operation from the latter point

to North street in the town of Blandford, a distance of 5.71 miles, until certain additional work was done by the company, in order to make this portion of the line safe and suitable for public travel. The necessity for this additional work was not disputed by the company, but up to the present time it has made little effort to complete the work designated. No certificate of operation has been requested for the remainder of the line from North street, Blandford, to Huntington, a distance of 4.88 miles.

From the facts recited, and the statements made by the company at the hearing, it is apparent that the company desires to postpone as long as possible the completion and operation of the section of the line from Algeree Four Corners to North street, Blandford, and that it has no desire or intention to complete and operate the remainder of the line from Blandford to Huntington unless required to do so by the Commission or other proper public authority.

The attitude of the company has been influenced by two considerations, the physical condition of the line and the financial condition of the company. Owing to the topographical condition of the territory through which this line has been built, its construction has proved difficult and costly. The total expenditures for this purpose, as stated by the company, have amounted to about three million dollars. From the western end of the line in Lee to the summit of the mountain near the village of Blandford, a distance of about twelve miles, the maximum grade is three and one-half per cent, and the operation of cars is entirely feasible. Between the summit of the mountain and North street, Blandford, considerable work must be done by the company in order to remove the slides in what is known as the Tiffany Cut. When that has been done, it is admitted that the line will be suitable for operation through to North street, Blandford. From that point, however, there is a descent of nearly five miles to Huntington, with numerous curves and grades ranging from five per cent to seven and one-half per cent. Owing to these conditions the company claims that the operation of this portion of the line would be attended with danger, and would prove so expensive as to make any extended use of the line, either for freight or passenger transportation, impracticable.

In this connection the company emphasized the fact that a satisfactory line might have been constructed if it had been permitted by the legislature of 1912 to abandon the section of the projected line between Blandford and Huntington and to



substitute a new route from Blandford over the plateau and directly into Westfield. It is proper, however, to point out that the extension to Huntington was specifically provided for in the act of 1910, and agreed to by the company, and that no proper opportunity was afforded to the legislature to pass specifically upon the propriety of substituting a new route to Westfield. That proposal was inserted in House Bill 2304 of 1912 and thus became merely a minor incident in an ambitious scheme for the domination of a large part of the street railway mileage of the state by the New Haven Railroad Company. If the company chose to present its proposal for a change of route in such a way as to preclude it from being dealt with on its merits, and as to array against it all those who were not prepared to accept the company's entire programme, it must bear the full responsibility for the result.

It is undoubtedly true that the portion of the line between Blandford and Huntington is not adapted to successful commercial operation, and that great care must be exercised by the company in order to insure safety of operation. If, however, this portion of the line is provided with the safeguards and operated under the conditions recommended by the inspection department of the Commission, the Commission is of the opinion that it may be operated with reasonable safety, and that no physical conditions exist which would justify the company in refusing to operate the entire line from Lee to Huntington.

The company also claims that the operation of the entire line would involve a financial loss which the company, in view of its present financial condition, ought not to be called upon to assume. On the other hand, the petitioners claim that if the line were completed it would permit of connection being made with the tracks of the Springfield street railway in Huntington, and would result in the development of a large amount of through transportation, both passenger and freight, between Springfield and Pittsfield which would prove profitable to the company.

In the judgment of the Commission, the physical characteristics of the line between Huntington and Blandford, which have already been described, make it impossible for the company to compete successfully for any considerable amount of through freight or passenger business, and if the entire line were operated the company would still be obliged to rely largely upon the revenue derived from its local business. In view of the

small income which the company has received from the portion of the line now in operation, there is little doubt that the entire line, if completed and open for use, would show an annual operating deficit of a substantial amount.

The annual return of the Berkshire Company for the year ended June 30, 1916, shows that the company was unable to pay any dividends upon its capital stock amounting at par to \$5,398,100, and that its gross income was insufficient by over \$87,000 to pay its operating expenses and fixed charges. After every reasonable allowance has been made for any possible inflation in the company's capitalization or floating debt, it does not appear that the financial condition of the company is such as to justify the Commission, under ordinary conditions, in requiring the company to assume an additional financial burden through the operation of an unprofitable line.

This case, however, differs in important respects from a proceeding brought under the general law to compel a street railway company to build and operate an extension of its existing lines. This line has already been substantially completed, at an estimated cost of approximately three million dollars. The obligation to build and operate it was definitely imposed by the act of 1910, as one of the considerations for permitting the New Haven Company, contrary to the general law and policy of the commonwealth, to acquire and hold the capital stock of a street railway company. This legislation, moreover, was actively sought by the New Haven Company, not with any expectation that the operation of the Berkshire Company would in itself prove profitable, but in the belief that the existing and projected lines of the Berkshire Company would serve as feeders to the New Haven railroad, and would develop a large amount of long-haul business for the New Haven Company, which would be sufficiently profitable to offset any loss from the operation of the street railway properties. The agreement of the New Haven and Berkshire companies, evidenced by their acceptance of the act, to build and operate this line for what they regarded as a valuable consideration, raises what is virtually a contractual obligation from which the Berkshire Company cannot be excused by any showing that the operation of the line would prove unprofitable. The Commission has no authority to modify the terms of that contract, and considerations addressed to the discretion of the Commission have no relevant place in the present proceeding.

As two years have elapsed since the line was practically completed, the company should proceed without further delay to put the line in suitable condition for operation. Although much of the work remaining to be done cannot be undertaken until after the close of the winter season, the company should be able, by the exercise of reasonable diligence, to open the entire line for public travel within six months from this date. It is therefore

*Ordered*, That the Berkshire Street Railway Company complete the construction of its line from the town of Lee to the town of Huntington, in such manner and with such safety appliances as may in the judgment of the Commission be necessary to render it safe and suitable for operation, and open said entire line for use on or before July 1, 1917.

By the Commission,

ANDREW A. HIGHLANDS,

DECEMBER 30, 1916.

[P. S. C. 1431]

*Secretary.*

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*Petition of the Boston Elevated Railway Company that the terminus of the Cottage Farm Bridge line of cars be made at the junction of Essex street and Commonwealth avenue in Boston, instead of at Kenmore station.*

*Petition of Frank W. Dallinger and other patrons of the Boston Elevated Railway Company for the restoration of certain service between Cambridge and Boston via Cottage Farm bridge.*

On August 17, 1915, the Commission issued a memorandum upon the complaint of Frank W. Dallinger and others concerning restoration of the Cottage Farm Bridge line of the Boston Elevated railway in Cambridge (3d P. S. C. Rep., p. 205). As shown in greater detail in that memorandum, the line formerly operated by the Boston Elevated Railway Company between Harvard square, Cambridge, and the Park street station of the Tremont street subway by way of Massachusetts avenue, Pearl street, Putnam avenue, Brookline street, Cottage Farm bridge, Commonwealth avenue, Boylston street surface and the Tremont street subway, was terminated, upon the opening of the Boylston street subway, at the corner of Essex street and Commonwealth avenue, near the end of the Cottage Farm bridge, and operated between that point and Harvard square only. The company

having agreed, at the suggestion of the Commission, to extend the line for an experimental period to the Kenmore street station at the entrance of the Boylston street subway, the complaint was placed on file, "with the understanding that, after the present service has had a reasonable trial, a petition may be brought either by patrons of the line or by the company for such further change of service, if any, as may then seem necessary or desirable."

The experiment of running this line to Kenmore street has apparently satisfied neither party, as the company has petitioned the Commission for the discontinuance of the portion of the line now operated over Commonwealth avenue, and the former complainants, who are patrons of the line in Cambridge, have petitioned for the extension of the line from its present terminus to the North station by way of Beacon street, Massachusetts avenue, Boylston street surface and the Tremont street subway. These petitions were separately heard but are dealt with jointly in this report. For convenience, the term "petitioners," as hereafter used, is to be understood as referring to the petition filed by patrons of the line, and where reference is made to the petition filed by the Boston Elevated Railway Company the petitioner will be referred to as "the company."

The company contended that the normal current of travel from Brookline street and adjacent streets in Cambridge is northbound to Central square, where transfer may be made to the surface lines radiating from that point as well as to the Cambridge subway; that the use of the Cottage Farm Bridge line for travel between Cambridge and Boston is practically confined to those boarding the cars at three stops south of Putnam avenue; that the patronage of the line, amounting on the average to about three passengers per trip at Kenmore street, does not justify the waste mileage which is now operated over Commonwealth avenue, and that the line, instead of being extended to the North station, should be terminated at the junction of Essex street and Commonwealth avenue.

On the other hand, it was claimed by the petitioners that the poor showing of this line is due to its present routing and that its extension to and through the Tremont street subway to the North station would convert it into a paying line. Traffic counts made by the inspection department of the Commission sustain the company's contentions in regard to the present riding characteristics of this line, and the operation of the sug-



gested through service over a long and circuitous route from Harvard square to the North station for the sole benefit of the petitioners and the section which they represent, would be contrary, in the absence of unusual circumstances, to any sound principle of street railway operation. There are, however, other considerations affecting the proposed extension of this line which may give it a different aspect.

The district lying between the entrance to the Boylston street subway at Kenmore street and the entrance to the Tremont street subway on Boylston street has grown to be an important business as well as an important residential section, and as such it is entitled to reasonable surface car facilities for the accommodation of passengers desiring to reach points between the subway stations. In order to provide for this service, a line is operated from Harvard square, Cambridge, by way of the East Cambridge viaduct, the Tremont street subway, Boylston street surface, Massachusetts avenue and Beacon street to Kenmore street. This line is operated on a ten-minute headway and another line is operated on a similar headway between Kenmore street and the Park street station of the Tremont street subway, making a five-minute headway between those points. It would be possible to discontinue the service now furnished by one of these lines between Kenmore street and Park street, if the Cottage Farm Bridge line were extended to the Tremont street subway and operated on a ten-minute headway, as requested by the petitioners. This rearrangement of service would make for better operation, as the Cottage Farm Bridge line, as well as one of the other two lines just referred to, would no longer be required to turn back at Kenmore street, where neither the location nor the track facilities are adapted for that purpose. If the Cottage Farm Bridge line should be extended it might be found most convenient, for the present, to substitute the extension of that line for the line now operated from Kenmore street to Park street only; but this extension should ultimately replace the service now furnished over the same route by the Harvard Square-Viaduct line. As that line is one of the main arteries of travel between Cambridge and Boston, and as its present route is too long to permit of regularity of service and efficiency of operation, provision should be made for its discontinuance beyond Scollay square or, at least, beyond Copley square. Some action of this kind must necessarily be taken in the near future, as the trailer cars which the company expects

to install upon that line within the next few months cannot be conveniently operated to the present terminus of the line at Kenmore street.

In view of these considerations, the Commission is of the opinion that the extension of the Cottage Farm Bridge line to the Park street station of the Tremont street subway, in substitution for equivalent service now furnished on one of the other lines between Kenmore street and Park street, will result in greater efficiency and economy of operation for the Boston Elevated system as a whole; and while it is doubtful if the Cottage Farm Bridge line of itself will prove profitable, it is likely, under the rearrangement of service proposed, to attract additional patronage and to become less of a financial burden to the company than it is at present.

The petitioners, in requesting the restoration of the former service on the Cottage Farm Bridge line, asked that the line be extended through the Tremont street subway to the North station. It is true that for a period of about six weeks after the opening of the Boylston street subway, and as a temporary measure pending the rearrangement of schedules incident to the operation of the new subway, the Cottage Farm Bridge line was extended to the North station, but the regular terminus of the line was formerly at Park street. Moreover, owing to the limited track facilities in the Tremont street subway between Park street and Scollay square, it is necessary for the company, so far as practicable, to operate large semi-convertible cars or two-car trains in order to provide for present demands of travel between Park street and the North station. Cars with a seating capacity of thirty-four passengers only, such as are used on the Cottage Farm bridge line, while apparently ample for the needs of that line would not be suitable for operation in the Tremont street subway between Park street and the North station. For that reason, and as little evidence was presented at the hearings of any public demand for the extension of this line to the North station, the Commission believes that it should be operated as far as Park street only.

The petitioners also requested the restoration of the service which was formerly furnished during rush hours by the operation of a line on a fifteen-minute headway from the Cottage Farm bridge to Dudley street. In order to make reasonable provision for the transportation of the employees of the factories located in the neighborhood of the Cottage Farm bridge, the Commission is of the opinion that the regular service between Harvard

square and Park street by way of the Cottage Farm bridge, which is to be operated on a ten-minute headway, should be supplemented during the rush hours by providing an additional service of at least six cars an hour between the corner of Essex street and Commonwealth avenue and Central square, Cambridge, either by the diversion of cars now operated on the River street-Dudley street line or by some other method.

During the course of the hearings on these petitions, complaint was also made of delays and irregularity of service on other Cambridge lines on account of the congestion of cars on the Green street loop near Central square. In order to relieve this condition the company has combined into a single through line the Oak square-Central square line, via River street, and the Spring Hill-Central square line, via Prospect street, both of which were formerly looped back at the Green street loop. The Commission in a recent order relative to the service of the Boston Elevated Railway Company in East Boston, and for reasons therein stated, has provided, among other things, for the termination at Kendall square of the line now operated from Lexington street, East Boston, through the East Boston tunnel to Central square, Cambridge (P. S. C. 1313, 1302). This change will tend further to relieve the congestion on the Green street loop, but in order to compensate for the discontinuance of this line between Central square and Kendall square equivalent service should be furnished by another line between these points. While the exact method of providing this service may, for the present, be appropriately left to the discretion of the company, the Commission would suggest that the line now operated between Porter square and Central square be extended, for a trial period at least, to Kendall square. The re-routing of that line would remove it from the Green street loop and thus tend to a further improvement of operating conditions at that point.

It is, therefore

*Ordered*, That the Cottage Farm Bridge line of the Boston Elevated railway which is now operated between Harvard square, Cambridge, and the Kenmore station of the Boylston street subway, be extended by way of Beacon street, Massachusetts avenue, Boylston street surface and the Tremont street subway to Park street and operated on a schedule providing for not less than six cars an hour.

And it is

*Further ordered*, That the company during the rush hours provide an additional service of at least six cars an hour between

Central square, Cambridge, and the corner of Essex street and Commonwealth avenue.

And it is

*Further ordered*, That the company, upon the discontinuance, pursuant to an order of the Commission issued July 13, 1916 (P. S. C. 1313, 1302), of the service between Central square and Kendall square, Cambridge, now furnished by the line operated between Central square, Cambridge, and Lexington street, East Boston, provide for equivalent service between Central square and Kendall square by the operation of another line between those points.

Attest:                   ANDREW A. HIGHLANDS,  
JULY 24, 1916.       [P. S. C. 1142, 1268]                   *Secretary.*

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*Petition of Representative Manassah E. Bradley and others relative to the restoration of certain service on the Jeffries Point line of the Boston Elevated railway in the East Boston district of the city of Boston.*

The Boston Elevated Railway Company formerly operated a line of cars on a fifteen-minute headway during normal hours and a ten-minute headway during rush hours from Jeffries Point, East Boston, to Scollay square, by way of the East Boston tunnel. After the completion of the extension of the tunnel to Bowdoin square the company, on March 18, 1916, rearranged the operating schedule of the Jeffries Point line by running a shuttle line between Jeffries Point and the entrance of the tunnel at Maverick square, and by establishing free transfer privileges at the latter point to and from cars operated through the tunnel. This change was confined to normal hours, the through service being retained during rush hours on the former schedule. The petitioners claimed that this rearrangement of service had resulted in serious inconvenience to patrons of the line, and requested the restoration of the former through service.

The distance from Jeffries Point to Maverick square is about two-thirds of a mile; from Jeffries Point to Scollay square, where the large majority of passengers board and leave the cars, is about two miles; and from Jeffries Point to the terminus of the line at Bowdoin square is about two and one-quarter miles. The service on the shuttle line between Jeffries Point and Maverick square is scheduled to operate on a headway of twelve minutes, the former headway on the through line being fifteen minutes. From an investigation made by the inspection depart-



ment of the Commission it appears that this shuttle service is furnished by a single car, which has been unable to maintain and cannot be expected to maintain its schedule. Outbound passengers transferring at Maverick square have therefore frequently been obliged to wait for fifteen minutes, and occasionally for a much longer period. As the running time on the through line from Jeffries Point to Maverick square is about ten minutes, the time spent by passengers in waiting at the transfer point under the new schedule is therefore greater in many cases than the time necessary to make the entire journey. The inconvenience caused by this long delay is aggravated by the fact that no shelter or waiting room facilities are available at the transfer point. Moreover, outbound passengers boarding the cars at Scollay square are frequently unable, especially if the cars are crowded, to obtain transfer checks from the conductors before reaching Maverick square.

The company made no claim that the former operation of a through service on the line during the entire day had resulted in a net loss of revenue. Indeed, traffic counts taken by the Commission tend to show that this line, both on the basis of car miles and car hours, yielded a considerably larger revenue than the average of all lines in the system. The company claimed, however, that under the former schedule of through service the Jeffries Point cars operated through the tunnel during normal hours carried an average of only fifteen passengers, that the transfer of these cars to one of the East Boston trunk lines would result in a better utilization of available seating capacity; that the substitution of a shuttle line on a more frequent headway from Jeffries Point would compensate the people of that district for the inconvenience of making a transfer; and that, in any event, any possible disadvantage to the patrons of that line would be offset by the additional service and facilities furnished on other East Boston lines. The company also stated that according to well-established principles of street railway operation, main trunk lines should furnish through service, but cross-town lines and other lines operated on an infrequent headway should be run as shuttle or feeder lines, making connections at suitable transfer points with the through lines. It was also claimed that the rearrangement of service on the Jeffries Point line was made in conformity with this generally accepted policy.

It is doubtless true that any attempt by the Boston Elevated Railway Company to provide through service from all parts of the metropolitan district to the center of Boston would not only

represent a wasteful duplication of facilities, but would result in a serious disintegration of service. Of necessity, therefore, many lines must be operated as shuttle or feeder lines connecting with the main arteries of travel. But the policy of confining through service to main trunk lines does not represent any rigid and inflexible principle which may be blindly followed without regard to the conditions of the particular case involved. Even if the general policy is sound, the rule of reason must be used in its application.

Where there are convenient facilities for transfer and where a quicker and more frequent service is provided, passengers are compensated for the inconvenience of transfer, and this method of operation is not open to reasonable objection. But where, as in this case, a short line about two miles in length is broken up into two fragments; where the frequency of service on the shuttle line, in spite of the advertised schedule, is not increased; where passengers making transfer are subjected to long delays and are afforded no shelter in case of inclement weather, where, by reason of the delay in transfer, the running time from Boston to Jeffries Point is in many cases more than doubled, and where the line can be operated as a through line on a paying basis and without interference with the service on other lines, the action of the company ought not to receive the approval of the Commission.

If a more frequent service were to be furnished on the shuttle line from Jeffries Point to Maverick square, it would require the operation of an additional car which would practically offset any saving made by the company through the discontinuance of the through service. Patrons of this line, who were present in large numbers at the hearing, desired the restoration of the through service on the former schedule, rather than a more frequent service on a shuttle line, and the Commission sees no reason why this matter should not be adjusted in accordance with their wishes.

It is therefore

*Ordered*, That the company, on and after April 8, 1916, restore the through service heretofore operated between Boston and Jeffries Point by way of the East Boston tunnel.

By the Commission,

ALLAN BROOKS,

*Assistant Secretary.*

APRIL 6, 1916. [P. S. C. 1288]

*Petition of Representatives John J. Kearney and Edward I. Kelley, and other residents of East Boston relative to service on the Boston Elevated railway between East Boston and Boston.*  
*Petition of Maurice Caro relative to service and conditions in the East Boston tunnel of the Boston Elevated railway in the city of Boston.*

The petitioners complain of the unsatisfactory service furnished by the Boston Elevated Railway Company upon its various lines between East Boston and Boston. From the evidence presented at the hearings and obtained by the Commission as the result of its own investigation, the complaint of the petitioners is shown to be fully justified, and a radical improvement is demanded in the present street railway service in the East Boston district.

The Commission for more than a year has had the lines on the East Boston division of the Boston Elevated railway under special observation, and has from time to time conferred with the company with a view to securing much needed improvements in the service. As all the East Boston lines are operated through the East Boston tunnel, the service that may be furnished between Boston and all points in East Boston is obviously limited to the capacity of the tunnel. So long as Scollay square remained the westerly terminus, the capacity of the tunnel was limited to the number of single-unit cars per hour that could be operated to and turned back on the stub-end tracks at that point. This number proved to be wholly inadequate for the needs of the East Boston service during rush hours. The completion of the tunnel extension, with facilities for looping cars at the Bowdoin square station, seemed to offer the only feasible remedy for the extreme congestion of travel on the East Boston lines.

The tunnel extension was completed and opened for use on March 18, 1916, but the immediate result showed little improvement over the former service. A certain number of additional cars were operated, but these hardly proved sufficient to provide for the increased travel resulting from the abolition of the tunnel tolls on February 7, 1916. While it has been estimated that the tunnel itself, with the loop and the improved signal system recently installed, will accommodate from 125 to 150 units per hour, the company has not found it possible, with its present equipment and the conditions now existing on the surface lines in East Boston, to operate much more than 80 cars per hour at

the maximum, a number inadequate to meet the present demands of rush hour travel.

While it is practicable, especially if certain changes are made in track conditions and at the tunnel entrance as hereinafter recommended, to operate more units per hour, more substantial relief for present congestion will be afforded through an increase in the size of the units by operating trains of two cars or more. The Commission, on April 5, 1916, approved plans submitted by the Boston Elevated Railway Company for the construction of fifty additional trailer cars, and the delivery of these cars has been promised during the present month. As soon as these cars are received a trailer car service should be operated from the Bowdoin square loop through the tunnel and over the Meridian street line to the Gerrish avenue car house in Chelsea. So far as it may be found necessary for the operation of this service to relocate tracks and loops at Gerrish avenue and on Meridian street, seasonable provision should be made therefor, so that the trailer cars when received may be put promptly into service. In order to relieve the present congestion of traffic, additional cars should also be operated on the Bennington street line from Bowdoin square as far as Shelby street or Wordsworth street or through to Orient Heights, as the needs of the service may require.

In order to provide for the necessary increase of service upon these lines it is estimated that at least sixteen trailer cars and sixteen additional semi-convertible cars will be required. As the equipment now assigned to the company's East Boston division, exclusive of two small cars operated on the shuttle line between Maverick square and the North Ferry, amounts to only seventy-nine cars, the additional trailer cars and semi-convertible cars to be provided will increase present car facilities in the East Boston district by about 40 per cent and present seat facilities by over 45 per cent.

While this additional equipment is the best that can be provided in the immediate future, cars of the multiple-unit type of control are to be preferred to trailer cars for use in the East Boston tunnel, as they are better adapted to the grades in the tunnel, and as their availability for service, singly or in trains of any required number of cars, permits of a more flexible adjustment to the fluctuations of daily travel and to the increased traffic demands which may be anticipated in the future. These cars should be of the center-entrance type and similar in general



design to the trailer cars now in use on other parts of the system. For safety of operation, including freedom from fire hazard, they should also be of steel or other fireproof construction. The company should make provision as soon as practicable for the purchase of a sufficient number, not less than one hundred, of such cars, to permit of their operation over all tracks of the company in East Boston and Chelsea, except on two short lines, the Jeffries Point line and the North Ferry line, where cars of the type now in use are likely to prove sufficient for the demands of the service for some time to come.

It is possible that the semi-convertible cars now used on the Lexington street line might also prove sufficient for present demands of travel; but even if the operation of cars in single units should be adequate for the needs of this line, cars of the multiple-unit type, uniform with the cars used upon the other principal lines in East Boston would, in our judgment, result in better co-ordination of service and improved operation. Moreover, considerations of safety make it desirable, so far as practicable, to have all cars operated in the East Boston tunnel of fireproof construction. In order to permit of the operation of multiple-unit cars on the Lexington street line, the present track location must be widened about six inches. Although this street has a width of thirty-two feet only, we believe that the necessary widening can and should be made if approval therefor is granted by the street commissioners.

With the installation of multiple-unit cars on all the principal lines in the East Boston division, as indicated above, the trailer cars which are to be provided for immediate service in this division can be released for use on other lines of the Boston Elevated system.

At the date of the hearing the company was operating a through service between Central square, Cambridge, and Orient Heights by way of the East Boston tunnel and its Cambridge street extension. The petitioners claimed that this line was too long to permit of satisfactory operation, as delays at the Cambridge end caused irregularity of headway and general disorganization of service for those who were obliged to rely on this line for local service between Boston and East Boston. Soon after the hearing the company rearranged its schedule by diverting the through Cambridge service from the Orient Heights line to the Lexington street line, and by looping back the Orient Heights line at Bowdoin square. The operation of the through

cars over a shorter and less congested route and on a more frequent schedule has apparently resulted in some improvement of the service, but undoubtedly a more regular and dependable service would be furnished to East Boston points if all cars were looped back in the tunnel at Bowdoin square.

It is to be remembered, however, that one of the main purposes for which the extension of the East Boston tunnel was designed was to afford better rapid transit facilities for the residents of the West End district of Boston. For their accommodation the company is obliged to operate a line by way of the tunnel extension and Cambridge street, between Bowdoin square and Charles street, and as there are no facilities for turning cars back at the latter point the line must be operated through to a terminus in Cambridge. It has been suggested that this line should be operated as a local line between Central square, Cambridge, and the Bowdoin square station of the East Boston tunnel, instead of being routed through the tunnel and tied up with the service to and from East Boston. If this were done, it would be necessary to switch the cars back at Bowdoin square, as the present loop at that point does not permit of cars being turned back in that direction, and no loop for that purpose can be constructed within the present limits of the station. Any attempt to switch back these cars would obstruct and delay the general car movement at this point, and would result in an impairment instead of an improvement of the present service.

We believe, however, that the objection to the operation of this through service can be largely eliminated by making the terminus of the line in Cambridge at Kendall square instead of at Central square. This change will not only make the line considerably shorter, but will avoid the congestion on the Green street loop and on Massachusetts avenue, at and near Central square, as well as the delays caused by the passage of trains over the grade crossing of the Grand Junction branch of the Boston and Albany railroad. Between Kendall square and the entrance of the tunnel on Cambridge street the major portion of the route is over the Cambridge bridge, and there is no congestion, either of street cars or vehicular traffic, that should in any way affect the regularity of the service. This change will necessitate some rearrangement of service in Cambridge, which will be dealt with in another order of the Commission.

Since the date of the hearing upon this petition the company, in connection with certain rearrangements of service upon the

Belt line formerly operated between the South End and West End districts of Boston, has installed two lines which are operated, one from Lenox street by way of Huntington avenue and the other from Roxbury crossing by way of Tremont and Dartmouth streets, to Copley square, and thence by way of Boylston, Charles and Cambridge streets through the East Boston tunnel extension to the Scollay Under station. As there are no facilities for looping back cars in the station, the operation of these lines interferes with the use of the tunnel to its maximum efficiency. These lines should therefore be removed from the tunnel and diverted to another route as soon as such alternative route is fixed by the Commission after hearing upon a petition now pending for the restoration of the service formerly rendered between the South and West End districts of Boston.

In the petition of Maurice Caro, which was heard jointly with the general petition in relation to East Boston service, it was alleged that the method of receiving passengers at the Scollay Under station of the East Boston tunnel was inconvenient and unsatisfactory, and the Commission was requested to bring about an improvement of existing conditions. At this station there is a track at either side, forming what is known as an island platform. On both the eastbound and westbound tracks, at the time of the hearing, cars were stationed at three berths for the loading and unloading of passengers, and the arrangement of the block signals made it necessary to separate these berths by intervals of about two car lengths. Under this arrangement passengers using the westbound platform appear to have been accommodated in a reasonably convenient manner. The complaint in this case apparently related to the loading conditions on the eastbound platform. A large percentage of eastbound passengers enter the station from the easterly entrance and congregate opposite the first, or most easterly, berth. From that position it is impossible, on account of a line of concrete supports for the roof of the tunnel, for passengers to see a car standing at the third berth, and the noise of cars operating in the subway overhead makes it difficult to hear the announcements of the station men. Soon after the hearing the Commission suggested to the company that it discontinue the use of the third, or most westerly, berth on the eastbound track and operate its cars from the other two berths only. This suggestion has been adopted by the company, and has resulted in an improvement of the service. It was suggested that an illuminated sign should be installed to indicate the

cars that were being loaded at the different berths in the station. In view of the changed methods of operation adopted by the company the installation of such a sign appears to be unnecessary.

In this connection it may also be pointed out that the Commission, in order to promote the best utilization of present station facilities, suggested to the company that it should assign a larger number of men to the various stations in the tunnel, in order to direct and assist the handling of passengers as rapidly as possible. It was also suggested that the employees selected should be active, experienced men, of good judgment, and with a thorough knowledge of the different routes operated. This suggestion has also been adopted by the company, and has resulted in more efficient operation.

The possibility of furnishing satisfactory street railway service in East Boston is seriously affected by conditions on the surface tracks on Meridian street, between Maverick square and Central square. These tracks, which are used in common by all the principal lines in East Boston, are congested by street cars and vehicular traffic to an extent which makes this stretch of track a limiting factor in the total amount of service that can be furnished in the East Boston district. In order to accelerate the car movement over these tracks the company should construct a station, with a prepayment area, at the entrance to the tunnel at Maverick square. From counts taken by the Commission it appears that a large number of people board the inbound cars of the company at this point. As most of the cars are well filled when they reach Maverick square, and as passengers must board the cars by the rear door and pay fare as they enter, the cars are often delayed more than a minute in loading and unloading at this point. The construction of a prepayment area, which would allow passengers to board the cars freely by both doors, would result in a considerable saving of time and an increased capacity of the surface tracks on Meridian street at and near Maverick square.

The Orient Heights line, which is one of the main trunk lines in East Boston, is now operated through the tunnel to Maverick square, thence over Meridian street to Central square, thence over Bennington street and Chelsea street to Day square, and thence over Saratoga street to Orient Heights. As Saratoga street is a very narrow street, it is not well adapted for the operation of a line of this character. The present tracks on this street are also in very poor condition and would have to be widened in order to permit of the operation of a multiple-unit



train service. The Commission therefore recommends that the company, if it obtains the necessary approval of the local authorities, remove its tracks from Saratoga street and construct a double track reservation from Day square to Orient Heights by way of Bennington street, which has a width of seventy-five feet, and divert the Orient Heights line to this new location.

The operation of two-car trains over this new route should result in substantial improvement of the present service to Orient Heights. This line is, however, operated over the stretch of track on Meridian street, between Maverick square and Central square, where, as already pointed out, the congestion is such as to interfere with efficient operation. If, therefore, after a reasonable trial, the rearrangement of service on the Orient Heights line, already recommended, should prove inadequate to meet the demands of travel, the company should, not only for the better operation of this line, but for the improvement of the whole East Boston service, relieve the congestion on Meridian street by constructing a new line over Chelsea street from Maverick square to Day square, provided the necessary location can be obtained, and by diverting the service to Orient Heights over this new and more direct route. This relocation, in conjunction with the relocation suggested above from Day square to Orient Heights by way of Bennington street, would result in an entirely new route from the portal of the tunnel to the terminus of the line, and one which would make it possible for the company to furnish excellent train service between Boston and Orient Heights, where opportunity would be afforded for connecting or through service, by way of the Ocean avenue line recently constructed by the Bay State Street Railway Company, to Revere Beach.

While we believe that the various rearrangements of service already indicated will enable the company to make reasonable provision for the demands of travel to and from East Boston for the present and immediate future, we believe that it may ultimately prove desirable to extend the East Boston tunnel from Maverick square under Meridian street and Chelsea river to Chelsea square, Chelsea, and from Maverick square under Chelsea street to Day square, East Boston. This eventual scheme, which is not made the subject of any order or formal recommendation by the Commission at this time, but which might well, we believe, receive the careful consideration of the company, would probably make it possible for the company to handle to and through the East Boston tunnel all traffic from points north and east of Boston for many years to come.

The plan for the improvement of East Boston car service outlined above has been worked out by the Commission after conferences with operating officials of the company. Certain of its features were suggested by these officials, and others by the Commission; but the company, we understand, concedes the desirability of the entire plan as finally developed. No objection has been raised by the company on account of the cost of these projected improvements in service and facilities. While the Commission, in view of this fact, has given no detailed consideration to the question of cost, it believes that the changes provided for will not only effect improvements in service but that the investment involved is also desirable from the standpoint of economy and efficiency of operation.

It is therefore

*Ordered*, That the Boston Elevated Railway Company proceed as soon as practicable to make the following rearrangements of service on its East Boston division, provided and in so far as the necessary locations and relocations of tracks and other alterations are approved by the proper public authorities.

1. Upon receipt of the trailer cars ordered by the company, and approved by the Commission by an order dated April 5, 1916, the company shall immediately increase the equipment operated upon its East Boston division by the assignment to that division of such number of trailer cars and additional semi-convertible cars, not less than sixteen of each, as may be necessary, in the judgment of the Commission, to furnish adequate trailer-car service during the rush hours on the Meridian street line between the Bowdoin station of the East Boston tunnel and the Gerrish avenue car house in Chelsea, and to provide for such additional service on the Bennington street line from the Bowdoin station to Shelby street, or to Wordsworth street, or through to Orient Heights, as, in the judgment of the Commission, the needs of the service may require.

2. The company shall submit to the Commission for its approval plans for the construction of multiple-unit, center-entrance cars of steel or other fireproof construction and of the same general design as the trailer cars now in use upon its system. When such plans have been approved, the company shall purchase such number of said cars, not less than one hundred, as, in the judgment of the Commission, may be necessary for operation during all hours of the day upon all lines of the company in East Boston and Chelsea, except the Jeffries Point line and the North Ferry line in East Boston.

3. The line now operated from Lexington street, East Boston, through the tunnel to Central square, Cambridge, shall be discontinued between Kendall square, Cambridge, and Central square, Cambridge, and operated as far as Kendall square only.

4. The company shall submit to the Commission for its approval plans for a station and prepayment area at the portal of the East Boston tunnel at Maverick square, and shall proceed, as soon as such approval is secured, to the construction of such station and prepayment area.

5. The company shall construct a new double-track line in East Boston from Day square, by way of Bennington street, to Orient Heights, and upon its completion shall re-route the Orient Heights line over this new location.

6. The lines now operated from Roxbury Crossing and Lenox street to Copley square, and thence by way of Boylston, Charles and Cambridge streets and the East Boston tunnel extension to the Scollay Under station shall be removed from the tunnel as soon as an alternative route for these lines is fixed by the Commission, in an order to be issued, after hearing, upon the petition now pending of patrons of the Boston Elevated Railway Company for the restoration of the line of cars formerly operated between the South End and the West End districts of Boston.

7. Certain additional suggestions for the improvement of the service and facilities in East Boston, which are made in the report accompanying this order, are reserved for future consideration and action by the Commission in case the rearrangements of service hereinbefore ordered shall prove, after a reasonable trial, to be insufficient to provide for reasonable street railway service in the East Boston district.

By the Commission,

ANDREW A. HIGHLANDS,

JULY 13, 1916. [P. S. C. 1313, 1302]

Secretary.

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*Petition of Representatives Alfred J. Moore, John P. Englert, et al., for restoration of the cross-town surface line of the Boston Elevated railway from Forest Hills to the Park street subway via Hyde square in the city of Boston.*

The petitioners complain that certain rearrangements of service made by the Boston Elevated Railway Company upon its lines in the Jamaica Plain district of Boston, and hereinafter

described, have resulted in a decrease of the facilities for travel and an impairment of the service previously furnished to the residents of that district, and request the Commission to order the restoration of the former service.

Formerly the Jamaica Plain district was served by four street railway lines, the South Huntington avenue line, the Dudley street line, the Tremont street line and the cross-town line. The South Huntington avenue line ran from the Jamaica Plain car barn, via South Huntington avenue, Huntington avenue and Boylston street to the Park street station of the Tremont street subway, on a headway of 7 and 8 minutes during normal hours and of  $2\frac{1}{2}$  minutes during rush hours. The Dudley street line ran from the Jamaica Plain car barn, via Centre street, Hyde square, Jackson square and Roxbury street to the Dudley street elevated station, on a headway of 7 and 8 minutes during normal hours and of 3 minutes during rush hours. The Tremont street line, starting at the Jamaica Plain car barn, and the cross-town line, starting at Forest Hills, ran via Centre street and Hyde square over the same route as the Dudley street line to Jackson square, and thence over Columbus avenue to Roxbury crossing, where the two lines diverged, the Tremont street line running via Tremont street to the Pleasant street entrance of the Tremont street subway and thence through the subway to the North station, and the cross-town line continuing over Columbus avenue, Massachusetts avenue, Huntington avenue and Boylston street to the Park street station of the Tremont street subway. The Tremont street line was operated on a headway of 10 minutes during normal hours and of 5 minutes during rush hours, and the cross-town line on a headway of 15 minutes during normal hours and of 10 minutes during rush hours.

The former routing and headway of the South Huntington avenue, Dudley street and Tremont street lines, as described above, have not been changed under the present method of operation, but complaints of overcrowding, due to the operation of an insufficient number of cars on these lines, were made at the hearing, and though not strictly within the scope of the petition will be referred to and dealt with in a later part of this report. The specific complaint embodied in the petition and principally urged at the hearing related, however, to changes in the service formerly furnished on the cross-town line.

The first change made in that service was the discontinuance of the cross-town line between Forest Hills and Hyde square, the



remainder of the line being operated from the loop at Hyde square to Park street, by way of Huntington avenue, as heretofore. This change was made in conjunction with the extension of the Tremont street line from the Jamaica Plain car barn to Forest Hills for the alleged purpose of furnishing service on a more frequent headway between Jamaica Plain and Forest Hills. A further change was made about a year ago, when the cross-town line from Hyde square was discontinued entirely and the Tremont street line was discontinued between the Jamaica Plain car barn and Forest Hills. These changes, the petitioners claim, have disadvantageously affected the service in the Jamaica Plain district in two ways, — first, because the entire Jamaica Plain district has been deprived of through service to Forest Hills, and secondly, because the portion of this district between Hyde square and Jackson square has been deprived of through service to Park street, by way of Huntington avenue. As these two phases of the present service represent distinct grounds of complaint, they will be considered separately.

In order to compensate for the loss of service between Forest Hills and the Jamaica Plain car barn, when the Tremont street line was discontinued beyond the latter point, the Hyde Park avenue line, which was formerly operated from the Hyde Park boundary line to Forest Hills, was extended to the Jamaica Plain car barn. In October, 1915, this extension of the Hyde Park avenue line was discontinued and the Charles River line, running from West Roxbury to Forest Hills, was extended to the Jamaica Plain car barn. This service is still in operation. As a result of these changes, the residents of Jamaica Plain have been deprived of all through service to Forest Hills and must make two transfers, one at the Jamaica Plain car barn and another three minutes later at Forest Hills, in order to reach points in the Roslindale, Germantown, Mount Hope and Mattapan districts, as well as points beyond in Dedham, Hyde Park and Milton.

The inconvenience of this arrangement has been aggravated by the fact that passengers transferring at the Jamaica Plain car barn have been obliged to walk about 300 feet and to transfer in the street. This particular cause of complaint, however, will be removed in the near future, as the company, in order to provide for more regular and efficient operation, is installing additional tracks and loops at the Jamaica Plain car barn with suitable facilities for lay-off of cars at that point, and is also

constructing a prepayment area which will permit of a bodily transfer being made under shelter instead of in the street.

The present arrangement under which the Jamaica Plain car barn is made the terminus of all Jamaica Plain lines is undoubtedly open to objection. The distance from the car barn to Forest Hills is less than half a mile and the running time about 3 minutes. It seems to us that the extension of at least one of the Jamaica Plain lines over this short stretch of track to Forest Hills, if this change can be made without detriment to the service on other lines at Forest Hills, would be justified by the greater convenience afforded to the public. Forest Hills is the terminus of the elevated line as well as of several important surface lines from the territory south of that point. If one of the Jamaica Plain lines, preferably the Tremont street line, were extended to Forest Hills, it would facilitate travel between contiguous suburban communities and would result in a better co-ordination of existing service and facilities.

The company claims, however, that the former operation of a Jamaica Plain line, originally the cross-town line and later the Tremont street line, to Forest Hills increased the congestion on the surface tracks at the Forest Hills station and resulted in other complications of operation, as the Jamaica Plain cars, being obliged to switch back and make a lay-off at the cross-over near the corner of Hyde Park avenue and Walk Hill street, congested the tracks and interfered with the operation of cars on the main line tracks on Hyde Park avenue.

It is undoubtedly true that the congestion due to the lack of proper surface track facilities at Forest Hills has been the subject of widespread public complaint and agitation, and that the rearrangement of service on the Jamaica Plain lines has helped to relieve the congestion, both on the tracks and on the platform area at the Forest Hills station. It is also true that the former method of turning back the Jamaica Plain cars on Hyde Park avenue was objectionable from an operating standpoint. The Commission has, however, recently approved plans for enlarging the station at Forest Hills, and it is possible that these increased facilities may provide adequate accommodation for a Jamaica Plain line in addition to the lines now terminating at Forest Hills. We are also of the opinion that, if the extension of a Jamaica Plain line to Forest Hills is otherwise desirable, it is possible to provide for a more satisfactory method of turning back the cars on that line than the one heretofore adopted by

the company. A definite decision on the extension of the Jamaica Plain-Tremont street line to Forest Hills should, however, be deferred until the rearrangements of facilities at the Forest Hills station are completed and an opportunity has been afforded to investigate the effect of these changes in relieving the present congestion at that point.

While reference was made at the hearing to the inconvenience caused by the lack of through service from Jamaica Plain to Forest Hills, the petitioners' principal ground of complaint was the discontinuance of the cross-town service, by way of Huntington avenue to the Tremont street subway, which was formerly furnished by the Hyde square line. On the other hand, the company attempted to justify the discontinuance of that line on the ground that full compensation was given by a rearrangement of service and more frequent headway on the Talbot avenue line.

The Talbot avenue line was formerly operated on a headway of 15 minutes during normal hours and of 5 minutes during rush hours from Peabody square, Dorchester, via Talbot avenue, Blue Hill avenue, Seaver street, Egleston square, Jackson square, Roxbury Crossing, Columbus avenue, Berkeley street and Tremont street to the Pleasant street entrance of the Tremont street subway, and thence through the subway to the North station. When the Hyde square line was discontinued the Talbot avenue line was operated over the former route of the Hyde square line from Jackson square via Huntington avenue to Park street, and the headway of the line during normal hours was made 10 minutes instead of 15 minutes, the rush hour service remaining unchanged.

As a result of this change, patrons of the Talbot avenue line between Peabody square and Jackson square, a distance of about  $3\frac{1}{2}$  miles, are given a more frequent service to Park street as well as to intervening points on Massachusetts avenue and Huntington avenue in the Back Bay district of Boston. From Jackson square and Roxbury Crossing a more frequent service has been furnished to points in the Back Bay district, but there has been a decrease in service to points on Tremont street as well as a slight decrease in the aggregate through service for passengers formerly using either the Huntington avenue line or the Tremont street line to reach Park street or other stations in the Tremont street subway. This change has, therefore, resulted in an obvious improvement of service for patrons of the

Talbot avenue line in Dorchester, and, so far as it has affected the district between Jackson square and Roxbury Crossing, the absence of any complaint from that district seems to indicate that the increased service on the single line operating from Roxbury Crossing via Huntington avenue to Park street has outweighed the decrease in the much more frequent service from Roxbury Crossing via Tremont street, both to the subway and to surface points in the business district of Boston.

The advantages incident to this rearrangement of service have, however, been secured at the expense of a distinct impairment of the service in the section of the Jamaica Plain district lying between Hyde square and Jackson square. Passengers boarding cars between these points and desiring to reach points on Massachusetts avenue or Huntington avenue can no longer obtain through service, but must use the Tremont street line and transfer either at Roxbury Crossing to the Talbot avenue line or at the corner of Tremont and Northampton streets to the Dudley street-Park street line or the Dudley street-Harvard square line. For such passengers this rearrangement of service, by reason of the delays at the point of transfer, has resulted in a less convenient and, on the average, a less expeditious service than that which they formerly enjoyed. Between Hyde square and Jackson square the facilities for through travel to Park street on all lines using the Tremont street subway have also been decreased during normal hours from 10 cars an hour to 6 cars an hour.

Although the former service in the Hyde square district was undoubtedly better than the present service, that fact in itself is not sufficient to justify the Commission in ordering the restoration of the former service. The only question which the Commission may properly consider is whether the present service is reasonably convenient and reasonably adequate to meet the present demands of travel from that district. In order to determine this question the Commission has taken a personal view and has had traffic counts tabulated by its inspection department and filed with the records in this case.

The total distance from Hyde square to Jackson square is slightly under three-quarters of a mile, but as the shoe factory of the Thomas G. Plant Company, where a large number of persons are employed, and other industrial establishments are located in this district, the amount of travel is comparatively large. According to traffic counts taken on July 31, 1916, the total number of passengers boarding inbound cars on all lines between Hyde square and Jackson square was 7,028. Of this



number 155 used the rush hour extra cars operated for the benefit of the employees of the Plant Company between Forest Hills and Roxbury Crossing, 4,299 used the Dudley street line and 2,574 used the Tremont street line. This represents an average of approximately 19 passengers per trip on all lines.

The traffic counts also show that 417 persons transferred from the Tremont street line to outbound Brookline cars and 1,131 transferred to inbound cars at Roxbury Crossing. The latter number includes those transferring to the Rowe's Wharf, East Boston ferry, Charles street and South Boston lines, as well as those transferring to the Talbot avenue line. As the exact number transferring to the last mentioned line is not shown by the counts taken, it is impossible to determine the number of those now using the Tremont street line who desire a cross-town service.

Some evidence on this point is, however, furnished by traffic counts taken by the company prior to the discontinuance of the Hyde square line. These counts show that the total number of passengers boarding the cars on that line between Hyde square and Jackson square on May 20, 1915, was 1,015. The company also claims that counts taken on July 20, 1915, show that 32 per cent of the patrons of this line from the Hyde square district transferred at Roxbury Crossing, 43 per cent rode through to Park street and only 25 per cent left the cars between Roxbury Crossing and the subway station. Those who transferred at Roxbury Crossing obviously did not desire a cross-town service, and those who rode through to Park street would have saved  $2\frac{1}{2}$  minutes in the running time if the line had been routed via Tremont street instead of via Huntington avenue. The only persons from the Hyde square district who were accommodated by the operation of the former Hyde square line were those who desired to reach points in the Back Bay district between Roxbury Crossing and the subway entrance. If the company's figures are accurate the number of such persons was about 260 daily, or an average of less than three passengers per trip. Even if the number of those desiring this service at the present time is much larger than the company's counts would indicate, it must represent a very small fraction of the total inbound travel from the Hyde square district which, as we have already pointed out, is in excess of 7,000 daily at the present time.

From all the evidence available, it appears to the Commission that the present method of routing cars from the Hyde square district is consistent with sound principles of street railway operation and is not at variance with any reasonable standard

of public convenience for the people of that district. Most of the travel from that district is on the Dudley street line, which, in conjunction with the elevated lines from the Dudley street station, affords the quickest service to the business center of Boston; the Tremont street line furnishes service without change, and by the most direct route, to all stations in the Tremont street subway; and for those passengers, relatively few in number, who desire to reach points in the Back Bay district, free transfer privileges are furnished both at Roxbury Crossing and at the corner of Tremont and Northampton streets. The number of passengers from the Hyde square district now making such a transfer is certainly not large enough to sustain an additional through line, and the inconvenience of the present transfer arrangements is no greater for the people of the Hyde square district than for the much larger number of people from Brookline, Cambridge and other suburban communities who must also transfer to reach Huntington avenue and other surface points in the Back Bay district. Any attempt to establish through service for every small group of riders on every available route in the Boston Elevated system would result in gross waste of the revenues contributed by the riding public and would be utterly impracticable from an operating standpoint.

The Commission believes that the people of the Hyde square district are not reasonably entitled, on the evidence in this case, to a through service over two alternative routes to the Tremont street subway, and that if the service is to be confined to a single line the substitution of the former cross-town line for the present Tremont street line would not be justified. While such a change would accommodate those desiring to reach points in the Back Bay district, it would discommode those desiring to reach points on Tremont street. The loss of time through the operation of this longer line would also be disadvantageous to the much larger number of passengers desiring through service to Park street or other stations of the Tremont street subway. The Commission, therefore, is of the opinion that for the large majority of people in the Hyde square district, the Tremont street line affords the most convenient route to the Tremont street subway, and that it would not be warranted in ordering the restoration of the former cross-town service either as an addition to or a substitute for the service on the Tremont street line.

But while the Commission is of the opinion that no change should be made in the present method of routing cars from Hyde square to Park street, it believes there was legitimate ground for

the petitioners' complaint in regard to existing street railway service and facilities in the Jamaica Plain district. In order to relieve the congestion of travel during rush hours on the South Huntington avenue line and the Dudley street line the company, after conference with the Commission, has agreed to operate a trailer service during rush hours on both these lines. This service is now in partial operation and will be fully installed in the near future. The company has also undertaken to make a rearrangement of stops on Centre street, near the Plant factory, so as to permit of the simultaneous loading of three single cars or two 2-car trains, instead of only one car at a time, as heretofore, and has assigned additional men to superintend the loading of these cars at this point. The inspection department of the Commission has been advised by officials of the Plant factory that these arrangements have proved satisfactory to their employees and have also resulted in expediting the entire service over Centre street during rush hours.

In addition to these changes, which have been already made or provided for, the Commission believes that free transfer privileges should be established by the company at Jackson square. As passengers from the Hyde square district desiring to reach Back Bay points must now use the Tremont street line to Roxbury Crossing, they are often subjected to a considerable delay in waiting for the Tremont street cars, which are operated on a ten-minute headway during normal hours, as well as to the delay at the point of transfer. If such passengers are permitted to use either the Tremont street line or the Dudley street line to Jackson square, and to transfer at that point to the Talbot avenue line, they will be afforded a normal-hour service of 14 cars an hour between Hyde square and Jackson square, instead of 6 cars an hour as at present. This change will result in a much quicker and better service to Back Bay points and should remove any legitimate cause of complaint on the part of those desiring a more satisfactory cross-town service.

As traffic counts taken at this season of the year may not accurately reflect normal riding characteristics, the Commission reserves for further consideration the question of the adequacy of the present service on the Tremont street line, as well as on the connecting lines to the Back Bay district. After the close of the summer season the inspection department of the Commission will keep these lines and the entire service in the Jamaica Plain district under close observation, and will make a further and more detailed study of traffic conditions in order to determine

what increases or changes, if any, should be made in the present service in this district.

It is therefore

*Ordered*, That additional free transfer privileges be established by the Boston Elevated Railway Company at Jackson square, Roxbury, as follows: —

1. Passengers boarding inbound cars reaching this point via Centre street, and paying cash fare after leaving South Huntington avenue, may transfer to cars leaving inbound via Columbus avenue.

2. Passengers boarding cars reaching this point outbound via Columbus avenue may transfer to cars running outbound via Centre street.

As the company has agreed to furnish trailer car service during rush hours on the lines operated from the Jamaica Plain car barn to Dudley street via Centre street and to the Park street station of the Tremont street subway via South Huntington avenue, and to make certain other rearrangements of service and facilities in the Jamaica Plain district, described in the accompanying report, no order is made in relation thereto.

Attest:                      ALLAN BROOKS,  
SEPTEMBER 1, 1916.      [P. S. C. 1311]                      *Assistant Secretary.*

*Petition of the Boston Elevated Railway Company for approval of the discontinuance of certain trips on the line operated between Park street car house, Dorchester, and Dorchester street, South Boston.*

This is a petition by the Boston Elevated Railway Company for the discontinuance during certain hours of the day of the street railway service heretofore operated between Park street, Dorchester, and Dorchester street, South Boston.

This service was established by the company in compliance with an order of the Commission issued December 10, 1913, upon the petition of the South Boston Citizens' Association. As no evidence was introduced by the company to show any change of conditions since that date or to justify the Commission at this time in revoking the order then made, — it is

*Ordered*, That the petition be dismissed.

Attest:                      ANDREW A. HIGHLANDS,  
FEBRUARY 8, 1916.      [P. S. C. 1186]                      *Secretary.*



*Petition of Walter H. Keenan et al. for the restoration of stopping posts on the Boston Elevated Railway on Columbia road, at Eastman street and at Annabel street, in the city of Boston.*

*Memorandum.*

At the hearing on this matter held on October 30, 1916, the Commission suggested to the company that it install an inbound stop at Eastman street and an outbound stop at Annabel street. This arrangement appeared to be satisfactory to the petitioners, and it became effective on November 24, 1916.

Attest:                   ANDREW A. HIGHLANDS,  
DECEMBER 14, 1916.   [P. S. C. 1463]                   Secretary.

*Petition of Meeting House Hill Improvement Association relative to discontinuance of certain service on the Boston Elevated railway in the Meeting House Hill district of the city of Boston.*

*Memorandum.*

This matter was originally presented to the Commission in the form of a complaint filed March 26, 1915, by certain residents of the Meeting House Hill district of Boston against the proposed discontinuance during normal hours of the service furnished on the Franklin street line, which was formerly operated by the Boston Elevated Railway Company from the Dorchester car house by way of Codman square, Meeting House Hill, Uphams Corner, Andrew square, Dorchester avenue and the South Station to Franklin street and return. After conference with the complainants and a careful investigation by the inspection department of the Commission, the Commission, on May 25, 1915, issued a memorandum (3d Rep. P. S. C., p. 200) suggesting that the company, instead of entirely discontinuing the normal-hour service furnished by this line, should, for an experimental period, substitute a new line on a more frequent headway from the Dorchester car house, by way of Meeting House Hill and the South Station, to Rowe's Wharf.

On June 4, 1915, the petitioners, being apprehensive that the service on the new Rowe's Wharf line would be less convenient than the service on the Franklin street line, which it was intended in part to displace, filed a petition for a public hearing

before the Commission relative to the discontinuance of the Franklin street line. Meantime the company had prepared its time-tables, effective June 12, for its summer service on the various lines in the Dorchester district and provision had been made for the discontinuance of the Franklin street line and the substitution of the Rowe's Wharf line, in accordance with the memorandum of the Commission. As the petition was filed too late to have the case heard before June 12, as any postponement of this projected change of service would necessitate a revision of the operating schedules for the entire Dorchester district and would be likely to delay the improvements upon other Dorchester lines which the Commission had found to be urgently needed, and which the company had provided for in its proposed summer schedule, and as the Commission believed that opportunity should be given for a brief trial of the service which it had recommended after a careful study of traffic conditions in this district, the company was allowed, without prejudice, to put this service into effect on June 12, 1915, and the petition was set down for hearing ten days later.

At the hearing the petitioners offered no evidence but merely made a formal protest against the change of service. Comparative counts made by the inspection department of the Commission, before and after the change of service, showed that the new line accommodated a much larger number of people in the Meeting House Hill district than the line which it displaced, and inspectors of the Commission who rode the cars and interviewed the passengers reported that the change of service was generally approved. This rearrangement of service was, therefore, permitted to remain in effect and a further study was made of traffic conditions, with a view to securing additional improvements of service in this district.

In the spring of 1916, the Commission informally suggested to the company the desirability of providing a new line from Meeting House Hill to Summer and Franklin streets and of making certain other rearrangements of service in the Meeting House Hill district. After consultation with residents of that district and conference with the Commission, the company agreed to inaugurate and has since put into effect a rearrangement of service in the Meeting House Hill district, under which the Rowe's Wharf line is retained on its former headway and a new line is operated on a ten-minute headway to Franklin street, by way of Edward Everett square and Massachusetts avenue. The latter line is

reinforced at Uphams Corner by a ten-minute line from Savin Hill, which will provide a five-minute service from Uphams Corner to Franklin street, by way of Edward Everett square and Massachusetts avenue. A ten-minute line is also operated from Park street to Dudley street, by way of Meeting House Hill. Under this arrangement the headways over Meeting House Hill, as well as on Dudley street, will be composed for the first time of lines on even headways, which should make for improved operation. The routing of the new lines over Massachusetts avenue is likely also to provide a more direct and expeditious service.

As the Commission is advised that this arrangement is generally regarded by residents of the Meeting House Hill district as a satisfactory adjustment, for the present, of outstanding complaints of service in this district, the petition is placed on file.

By the Commission,

ANDREW A. HIGHLANDS,

DECEMBER 30, 1916.

[P. S. C. 965]

Secretary.

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*Petition of J. D. Murphy and others, patrons of the Boston Elevated Railway Company, for the restoration of the stopping point for cars on its railway on Commonwealth avenue at the junction of Lawton street in the city of Boston.*

This is a petition of certain patrons of the Boston Elevated Railway Company, residing or having daily business on Commonwealth avenue or in that immediate vicinity, asking that the stopping point at the junction of Lawton street on said avenue, which was discontinued on January 1, 1916, be restored. The petitioners complain of the inconvenience caused by the removal of this car stop. A public hearing was held on the petition and an investigation was made by the inspection department of the Commission.

Car stops on Commonwealth avenue in the vicinity in question were formerly located at or near St. Mary's street, Lawton street and Granby street. The greatest distance between the stopping points near Granby street and the stopping point near St. Mary's street, as shown upon the plan presented at the hearing, is 800.06 feet. Lawton street is about midway between these two stopping points. Subsequently the Lawton street stop was abandoned and the car stops at Granby street and St.

Mary's street were retained, with slight changes in the location of the St. Mary's street stop, and both are now effective. The petitioners do not ask to have either of these present stops discontinued in case the Lawton street stop is restored.

This portion of Commonwealth avenue is a thoroughfare, over which it appears that sixty-two car trains per hour are operated during the rush hours with frequent service in normal hours. It seems that the company has, as a result of a comprehensive study of the whole situation, made a readjustment of car stops and eliminated, among others, the Lawton street stop, with a view to speeding up its through service to Newton and other points beyond. In a recent report made to the Commission by Mr. William B. Bennett, an expert employed to investigate the transportation needs of Metropolitan Boston, he stated: —

Another feature which has a direct bearing on street car service is the number of stops which cars are required to make. Where patrons are accustomed to certain stops they are reluctant to change. On certain lines of the Boston Elevated and Bay State street railway companies some stops can be eliminated which will result in a betterment of service far outweighing inconvenience occasioned thereby. (3d Rep. P. S. C., p. 480.)

Car stops at practically every street corner in outlying sections of the city certainly do not conduce to efficient street railway operation of through lines. In such matters as the location of stopping places much must necessarily be left to the discretion of the railway management. The facts appearing in the present case do not seem to call for the interference of the Commission. The former three stops at a comparatively short distance apart are now consolidated into the two stops at Granby street and St. Mary's street, with a consequent saving in running time. The distance from Lawton street is not more than from three hundred to four hundred feet, at the most, to either stopping place. The Commission is of opinion that the existing arrangement of car stopping points is in the public interest, and that the present stopping points afford reasonable accommodation for the street car patrons in the vicinity of Lawton street. It is therefore,

*Ordered,* That the petition be dismissed.

For the Commission,

ANDREW A. HIGHLANDS,

DECEMBER 30, 1916.

[P. S. C. 1242]

*Secretary.*



*Petition of Edward E. Clark relative to inadequate service on the Boston Elevated railway between Brookline, and other localities west of Brookline, and Boston.*

*Memorandum.*

The complainant in this case petitions the Commission for an order requiring the Boston Elevated Railway Company to construct an extension of its railway in Brookline avenue, Boston, from Boylston street to Beacon street, in order that residents of the southerly part of Brookline, as well as residents of other localities west of Brookline, who now use the surface line via Boylston and Ipswich streets, may receive the benefit of the facilities for direct rapid transit to and from Boston afforded by the Boylston street subway.

It appeared at the hearing on this matter that the Boston Elevated Railway Company had already been granted a location on Brookline avenue by an order of the board of street commissioners of the city of Boston dated March 25, 1913, approved by the board of railroad commissioners on April 30, 1913. The contemplated extension over this location has, however, never been constructed, as the bridge which carries Brookline avenue over the Boston and Albany railroad was found to be of insufficient strength and width properly to carry the proposed street railway traffic in addition to the vehicular traffic.

Under the provisions of section 23 of part I of chapter 463 of the Acts of 1906 the Commission has no authority to initiate proceedings for the alteration of the bridge.

However, as the Commission believes that the service desired by the petitioner should be furnished, it called the parties in interest into conference and it was finally agreed that the City of Boston and the Boston Elevated Railway Company should petition jointly, under the statute, for approval of the necessary alterations in the present structure. This was done, and on July 11, 1916, an order, prescribing the manner and limits of the alterations required in the Brookline avenue bridge, was issued by the Commission.

The Commission is assured that, when the alterations in the bridge are completed, tracks will be laid upon the location already granted in Brookline avenue and the service desired put into effect.

The petition under consideration is therefore dismissed.

Attest:

ALLAN BROOKS,

JULY 14, 1916. [P. S. C. 828]

*Assistant Secretary.*

*Petition of residents of Brookline relative to the re-establishment of the line of the Boston Elevated Railway Company from the Cypress street car barn, Brookline, to the Dudley street station, Boston.*

This is a case where the patrons of the Boston Elevated Railway Company living in the vicinity of Cypress street, Brookline, have been deprived of a through service which they had enjoyed for a number of years. Formerly two lines were run from the Cypress street car barn, one on a 10-minute headway to the Dudley street station and the other on a 15-minute headway to Park street, Boston, both via Brookline Village. In an endeavor to improve the service as a whole between Brookline and Boston, via Brookline Village, the company has made a general rearrangement of its routes and schedules in this district. The former 15-minute line to Park street has been made a 10-minute line, the former 10-minute line to Dudley street has been taken off and the service formerly furnished on the portion of that line between Brookline Village and Dudley street has been added to the Allston-Dudley street line, making the latter a 5-minute instead of a 10-minute line. At the same time the 15-minute Allston-Huntington avenue line was discontinued.

Under the former method of operation, more frequent service was available between Cypress street and Brookline Village for passengers desiring to transfer at the latter point to the various lines operating from Brookline Village to Boston or other points. These changes also make it necessary for persons boarding the cars west of Brookline Village and desiring to go to Dudley street, or points en route, to change cars at Brookline Village. The petitioners complain that the inbound Allston-Dudley street cars arrive at Brookline Village during the morning rush hours with standing room only, and reach Dudley street uncomfortably crowded; and that the same crowded conditions prevail on the outbound cars between Dudley street and Brookline Village during the evening rush hours. They further complain that, because of the irregularity of the schedule of the Cypress street-Park street line during these hours, they are often subjected to vexatious delays at Brookline Village transfer station.

It is not to be expected, of course, that the company should furnish to every community which it serves a through service over all routes to Boston, for certain transfers are necessary in order that the company may render better service as a whole.

The evidence presented at the hearing on this petition demonstrated, however, that more cars are needed between Cypress street and Brookline Village, as well as between Brookline Village and Dudley street, during the morning and evening rush hours, to provide proper and adequate service between these points.

The Commission believes that the conditions complained of would be, in a large measure, remedied if the line petitioned for were installed during rush hours.

It is therefore

*Ordered*, That, with the issuance of the next timetable, the Boston Elevated Railway Company operate between the Cypress street car barn, Brookline, and the Dudley street station, on a 10-minute headway during the morning and evening rush hours, a line of cars via Brookline Village, Tremont street, Roxbury Crossing and Eliot square.

Attest: ANDREW A. HIGHLANDS,

AUGUST 1, 1916. [P. S. C. 1333]

*Secretary.*

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*Petition of John W. Hammond and other citizens of Cambridge relative to unsatisfactory service between Harvard and Central squares, the congestion on the stairway leaving the Central square station, and the necessity of the construction of a subway station in or near Putnam square, on the Boston Elevated railway in the city of Cambridge.*

This is a petition of citizens of Cambridge who complain that the service on the surface lines of the Boston Elevated Railway Company between Harvard and Central squares, Cambridge, is poor, irregular and unsatisfactory, and that the congestion on the stairway from the Central square station to the surface during the evening rush hours is a great inconvenience to the traveling public. They therefore petition the Commission to consider "the urgent necessity of constructing and operating a subway station in or near Putnam square to relieve the above conditions, and to give rapid transit to a large and important section of Cambridge which is now denied it, though on the line of the subway."

Chapter 520 of the Acts of 1906 authorized the Boston Elevated Railway Company to construct a subway known as the Main street subway, in the city of Cambridge, which should form part of a rapid transit line between Harvard square, Cambridge, and Park street, Boston. This entire line as constructed

is known as the Cambridge subway, and consists of a subway from Harvard square, in and under Massachusetts avenue and Main street to the westerly abutment of the Cambridge bridge, a surface location in a reservation on the Cambridge bridge and an elevated structure at the easterly end of the Cambridge bridge connecting with the subway under Beacon Hill to Park street, Boston.

As the construction and operation of this subway diverted a large amount of traffic formerly handled by the surface lines on Massachusetts avenue, Cambridge, the number of cars operated between Harvard and Central squares was reduced. Patrons of the road residing between these points in the vicinity of Putnam avenue and Dana street, who use the surface cars on Massachusetts avenue in conjunction with the subway trains between Central square and Park street in going to and from Boston, complain of the poor, irregular and unsatisfactory service now furnished by the surface cars available for the residents of this district.

The present schedule between Harvard square and Central square calls for 32 cars an hour during rush hours, and 20 cars an hour during normal hours, or 420 cars per day in each direction. From counts taken by the inspection department of the Commission between 6 A.M. and 11.55 P.M. on August 8, 1916, it appears that the total number of trips operated was 432 inbound and 428 outbound; that the average interval between cars during rush hours was 1.9 minutes, during normal hours 2.8 minutes and during the entire day 2.5 minutes. These counts also showed that the number of cars run at intervals of over 5 minutes was approximately 4.6 per cent. inbound and 10 per cent. outbound. These figures are in substantial agreement with the records submitted at the hearing from observations made under the direction of the Cambridge Board of Trade.

Traffic counts submitted by the company at the hearing showed that the number of passengers in each car at Dana street on the inbound trips averaged 11 and on the outbound trips averaged 9. Recent observations made by the inspection department of the Commission at Central square showed that the average load during rush hours was about 12 passengers and that only 4 cars had passengers slightly in excess of the seating capacity.

Prior to the operation of the Cambridge subway the scheduled time from Dana street to Park street was 21 minutes. The



present running time from Dana street to Central square by surface cars is 3 minutes, and from Central square to Park street by subway trains  $5\frac{1}{2}$  minutes. In order to determine the actual time consumed by passengers traveling between Dana street and Park street, the Commission, on August 4, 1916, had one of its inspectors make 9 trips between these points in both directions, 3 trips being made during the morning rush hours, 3 trips during normal hours and 3 trips during the evening rush hours. The average time required for the inbound trips, including the time spent in transferring to the subway trains at Central square, was about  $10\frac{1}{2}$  minutes, and for the outbound trips less than 11 minutes.

It appears, therefore, that the surface cars available for residents of the Dana Hill district are run on an average headway of less than 2 minutes during rush hours, and of less than 3 minutes during normal hours; that these cars furnish ample seating capacity for all passengers during all hours of the day; and that the average running time from Dana street to Park street, a distance of about  $2\frac{3}{4}$  miles, including the delay at the transfer point, is from  $10\frac{1}{2}$  to 11 minutes. These facts do not indicate that the present service between these points is justly open to serious criticism. It is true that occasionally vexatious delays will occur, owing to unfavorable weather conditions, break-down of cars, the interference of vehicular traffic or other vicissitudes of operation, but it is impossible to guard against such contingencies, and some irregularity in the service is unavoidable. While some improvement in this respect is desirable, the observations made by the inspection department of the Commission do not indicate that the irregularity of service on these lines is more marked than on other surface lines of the company. The traffic demand does not appear to warrant any substantial increase in the number of cars now operated. These cars are free from overcrowding, and in this respect conditions are in favorable contrast with those on other lines of the company. On the whole, we believe that the service furnished between Harvard square and Central square is equal if not superior to that enjoyed by any other portion of Cambridge, or by any other suburban residential district at equal distance from the business center of Boston.

Regarding the complaint as to the congestion during rush hours on the stairway leading from the Central square station to the surface, the company has since installed an additional stair-

way, which has relieved the congestion complained of in the petition.

We now come to that part of the petition requesting the Commission to consider the urgent necessity of constructing and operating a subway station in the vicinity of Putnam square or Dana street, in order that the patrons of the road living in that vicinity might have the full benefit of rapid transit facilities to Boston by way of the Cambridge subway. The company through its counsel stated that, without admitting the power of the Commission to compel the company to construct an additional station at this point, it was willing to discuss the petition on its merits. This action by the company makes it unnecessary for the Commission to discuss the question of its jurisdiction to order the installation of this subway station.

The act authorizing the company to construct the Main street subway required the company to apply to the Board of Railroad Commissioners for approval of plans showing the proposed route and "the general form and method of construction with the location of proposed tracks and stations and approaches." Acting under this statute the company, prior to the completion of the subway, petitioned the Board for approval of a plan showing stations at Harvard square and Central square only. At the public hearings upon that petition many residents of Cambridge strongly advocated the establishment of additional stations at or near Kendall square, Portland street and Dana street. The Board, in its order issued July 21, 1908 (R.R. Com. Rep. 1908, p. 235), required the company to install an additional station at Kendall square, but declined at that time to provide for the additional stations requested at Portland street and Dana street. The considerations which influenced the Board in reaching this decision are summarized in the following extract from the report:

In ascertaining the number and location of stations in the subway that ought in the public interest and convenience to be immediately installed, the Board has made a careful study of the industrial, commercial and residential possibilities of Cambridge, and in locating stations has considered not only present but prospective wants of the traveling public. Making due allowance for the probable development of the city, we are convinced that three stations are the maximum that the Board at this time ought to indicate. We are not satisfied, however, that other stations will not be needed; but in view of the advantage of passing upon that question at a later time, with knowledge of the actual uses made of the surface and subway cars, we reserve our decision with regard to other

stations, at points suggested or elsewhere, until the subway is completed and in operation. Opportunity will then be presented to those interested in additional stations at any points along the subway to be heard without prejudice to their rights by this decision.

The petitioners allege that the practical operation of the present subway service with the changes in surface-car accommodations incidental thereto has demonstrated the necessity of constructing an additional subway station at some convenient point between Putnam square and Dana street, in order to provide reasonable transportation facilities for the residents of that section of Cambridge.

The distance between the entrances to the Harvard and Central square stations is a little less than a mile, and the proposed location of a station near Dana street is substantially midway between these stations. Running parallel with Massachusetts avenue and about 1,300 feet northerly is Broadway, on which the company operates two surface lines, one connecting with the Kendall square station and the other with the Central square station of the subway. On the south, about 1,800 feet from the proposed station, is Western avenue, through which runs another line of the company intersecting Massachusetts avenue at the Central square station of the subway. If a station were located in the neighborhood of Dana street, it is fair to assume that the people who would use it are those who reside within an area adjacent to the proposed station location of about half a mile east and west and about one-third of a mile north and south, which consists largely of private residences, with a few apartment houses.

The petitioners at the hearing laid special emphasis upon the fact that a distance of approximately a mile between subway stations was unreasonable, and that on other subways and rapid transit lines, both in Boston and in other cities, notably New York, the stations are usually located at intervals of about half a mile. It is true that on the subways and other rapid transit lines in Boston the stations are in general located at intervals varying from  $\frac{1}{2}$  to  $\frac{3}{4}$  of a mile. Conditions affecting the location of stations in the business district of Boston are so different from those which exist in the suburban district served by the Cambridge subway as not to be properly comparable. It is to be observed, however, that if the proposed station were constructed, the distance between stations upon this portion of the Cambridge subway would be less than the average distance between stations

on the Forest Hills elevated railway between Forest Hills and Dover street, which is about  $\frac{3}{4}$  of a mile, and would also be less than the average distance between stations on the Boylston street subway. So far as the New York subways are concerned, the conditions are so different as to make a comparison of even less value. As most of these subways are constructed with four tracks, two for express and two for local service, it is possible to locate stations relatively close together, and thus to permit the local trains to accommodate the short-distance riders and to serve as feeders for the express lines, without interfering with rapid transit. The distance between stops on the express trains varies from  $1\frac{1}{4}$  to over 2 miles, the average distance between such stops from Brooklyn bridge to 137th street being about  $1\frac{2}{3}$  miles. Taking the express and local service together, as should be done if any proper analogy is to be drawn with the Cambridge subway, where the same trains must accommodate both local and long-distance travel, the average distance between stops on the New York subways is something over a mile.

Moreover, as we have already indicated, distance alone is not a controlling factor. The location of stations is in large measure determined by special traffic demands at the junction points of converging surface lines or at other points of concentration of travel. Judged by this standard, there is little to indicate any special traffic demand which would justify the location of a station in the Dana Hill district.

The petitioners further stated that the installation of this station would largely increase property values in the vicinity, would lead to the erection of additional apartment houses, and would otherwise prove of great economic value to this portion of the city. As we have already pointed out, this section of Cambridge, from the standpoint of transportation facilities, is already in a favorable position as compared with other suburban residential sections of the metropolitan district. If, as claimed by the petitioners, the development of real estate values in the Dana Hill section has not been as rapid as in Arlington, Belmont and Watertown, and in certain sections of Cambridge beyond Harvard square, the obvious explanation would seem to be found in the fact that the chief incentive to the building of residential property on any extensive scale is the ability to purchase undeveloped land, suitably located, at a moderate price. In any event, the existing situation cannot be attributed to better street railway facilities in these other communities, but



has come about in spite of the relative advantage which the Dana Hill district now enjoys in this respect. Under these circumstances, any action by the Commission in the present case which might be actuated by the conscious purpose of affording an artificial stimulus for real estate development in this community at the expense of similar development in others, would be an arbitrary and unwarranted exercise of authority.

Moreover, if considerations of this character have any proper place in the present proceeding, the mercantile interests of Central square, which is the business center of Cambridge, are equally entitled to consideration. The diversion to the subway at Dana street of a considerable portion of the present surface car travel to Central square would injuriously affect the stores, banks and other places of business located at Central square. This view was expressed by prominent business men of Cambridge who appeared as remonstrants to the petition, and was undoubtedly also reflected in the vote of the Cambridge board of trade against the installation of the proposed station. In view of the remote bearing and the conflicting character of considerations of this nature, the only question which the Commission can properly consider is whether the installation of the proposed station would inure to the advantage of the general traveling public.

In regard to the number of people who would be served by the proposed station, it is impossible to give any exact estimate. Recent observations made by inspectors of the Commission at Central square, of traffic on surface lines to and from Harvard square between 7.30 and 10 A.M. and between 4 and 7 P.M. showed that on 180 trips inbound during these hours 2,202 passengers reached Central square, or an average of about 12 passengers per trip. As these counts covered the rush hour period, the total daily traffic on approximately 430 trips made by the present surface lines between Harvard square and Central square can hardly exceed 4,500 passengers in each direction. Counts taken by inspectors of the Commission also showed that this traffic is about evenly divided between those who board and leave the cars at Central square and those who continue their journey on these lines to and from points beyond Central square. Of those boarding and leaving the cars at Central square the large majority undoubtedly transfer to and from subway trains at that point, but a certain number transfer to other surface lines or travel to and from Central square only. Actual counts made

by the company of transfers issued at the Central square station and accepted on surface lines to Harvard square showed a total of 1,886 for an entire day. This, we believe, may be taken as a reasonably accurate indication of the average number of passengers in each direction who use these lines daily in conjunction with the subway service from Central square.

This number includes not only those riding to or from the Dana Hill section, but those riding to or from other points between Harvard square and Central square who would not be affected by the establishment of the new station at Dana street, but would still continue to use the surface lines. In estimating the number who would be benefited by the proposed station, it is proper, however, to include some of those who now walk to Central square, as well as some of those within reasonable walking distance of the proposed station who now use the Broadway or other surface lines. While no exact calculation can be made, we believe that the number who would use the subway station at or near Dana street would amount to approximately 2,000 persons daily in each direction.

To what extent would the establishment of such a station benefit those who might use it? As we have already pointed out, it takes on the average about  $10\frac{1}{2}$  minutes under the present arrangement to travel from Dana street to the Park street station. If the proposed station were established the running time between the same points would be reduced to about  $7\frac{1}{4}$  minutes. The average headway between subway trains is the same as between surface cars during the rush hours, with some slight difference in favor of surface cars during normal hours. For passengers who now board the surface cars at Dana street the average saving of time would therefore be about  $3\frac{1}{4}$  minutes. For those now boarding cars easterly or westerly of the proposed station location this saving would be diminished proportionately to the distance. At the former hearing before the Board of Railroad Commissioners Mr. W. B. Parsons, consulting engineer for the city of Cambridge, in advocating a station at Dana street, estimated that the average saving of time for all passengers who would use it would be about  $2\frac{1}{2}$  minutes. This, we believe, is a fair estimate. Such passengers would also undoubtedly be benefited by a somewhat greater regularity of service.

On the other hand, the establishment of such a station would result in inconvenience and loss of time to other patrons of the company. Passengers now boarding the subway trains at

Harvard square would be delayed by the additional stop necessitated by the establishment of the new station. Mr. Parsons estimated that this delay would be about  $1\frac{1}{2}$  minutes on the average in each direction. Having in mind the number of people who would be likely to use this station, we believe that this estimate is somewhat too large, and that the average delay caused by the slowing up and acceleration of trains and the loading and unloading of passengers would amount to about 1 minute in each direction. Traffic counts made by the company about two years ago showed that over 30,000 passengers a day in each direction used the subway trains to and from Harvard square, and the present number is probably much larger. The establishment of a station at Dana street would thus result in an average saving of about  $2\frac{1}{2}$  minutes for about 2,000 passengers, and a loss of about 1 minute for from 30,000 to 35,000 passengers on each inbound and outbound trip.

The latter are, however, not the only persons who would be likely to be inconvenienced as the result of the new arrangement. The establishment of a station at Dana street would divert to the subway at that point much of the present traffic on surface lines between Harvard square and Central square. In view of the light riding on these lines at the present time, it is fair to assume that the company would not be justified in maintaining all its present service to take care of the remaining travel. As fully one-half of those now using these lines ride through to surface points beyond Central square or transfer to other surface lines at that point, the number of passengers who would be discommoded by such a change of schedule would be as large as the number who would be accommodated by a station at Dana street.

It is important, also, to bear in mind that if the Commission should order a station at Dana street its action would be cited as a precedent for the installation of additional stations at other points on the subway. The distance between Central square and Kendall square is approximately the same as between Harvard square and Central square. At the former hearing before the Board of Railroad Commissioners the establishment of a station at Portland street or some other convenient point between Central square and Kendall square was strongly urged by arguments of local convenience and advantage similar to those which are relied on in the present case, and was regarded by the Board at that time as having at least as much merit as the establish-

ment of a station at Dana street. There has also been a strong demand on the part of residents of the West End district of Boston for the location of an additional station at or near Charles street. The propriety of installing a station at this point was considered by the Board of Railroad Commissioners in an order issued April 12, 1911 (R.R. Com. Rep. 1911, p. 238). While the Board, for reasons stated in the order, declined at that time to order the installation of a station at that point, it reserved the right to do so at some future time if such action seemed to be demanded in the public interest. The question as to whether additional stations should be located at Portland street and at Charles street is not now before the Commission and no opinion is expressed in relation thereto. While that question, if it should arise, would be determined on the merits of the particular case, favorable action by the Commission upon the present petition would undoubtedly encourage a renewed attempt to secure the installation of these additional stations. If the installation of a station at Dana street should be followed by the installation of stations at these other points, not only would the advantages of the Cambridge subway as a means of rapid transit be greatly impaired for all its patrons, but the present petitioners would find their anticipated saving in time wholly or in large part offset by the increased running time on the subway trains between Central square and Boston.

Viewed solely from the standpoint of the general interest of the traveling public, the advantages of the proposed station would be so clearly outweighed by its disadvantages that it becomes unnecessary to consider whether the company may properly be required to make the additional capital expenditures and assume the additional maintenance charges which would be entailed by the construction and operation of this station. The company estimated that the cost of a station at Dana street would be \$52,287.82 a year, with little or no resulting increase in the general revenue of the company. That estimate included interest and depreciation on the cost of the station, labor and other operating expenses, the cost of stopping and starting trains, and the extra cost of labor on trains, and the charge for extra cars and equipment made necessary by a longer schedule. Moreover if a station were built at this point, the platform would be  $38\frac{1}{2}$  feet below the surface, and escalators would undoubtedly be required for its convenient use by the public. With the additional expenditures necessary for that purpose the total cost



of the station, according to the company's estimate, would amount to \$60,646.62 a year.

The conclusion which the Commission has reached from other considerations has made it unnecessary for us to pass upon the accuracy of that estimate, but the amount involved is undoubtedly substantial. Before making an order requiring a common carrier to make additional expenditures for new appliances or facilities the Commission must consider "the financial ability of the carrier to comply with the requirements of the order and the effect of the carrier's compliance therewith upon its financial ability to make such other changes, if any, as may be deemed by the Commission of equal or greater importance and necessity in the performance of the service which the carrier has professed to render to the public." (Stat. 1913, chap. 784, sec. 23.) As the total amount which the company can expend for increased facilities is obviously limited by its financial resources, the advantage of the proposed station should be clearly demonstrated in order to warrant the expenditures of the company's funds for that purpose rather than for needed improvements upon other parts of its system. The evidence presented not only fails to demonstrate such advantage but clearly indicates that the proposed station would prove a detriment rather than a benefit to the service now furnished on the Cambridge subway.

In considering this entire case, the fact must be constantly borne in mind that this subway was designed and built, not only to accommodate the portion of Cambridge through which the subway is operated, but to furnish quicker and better service to the Mount Auburn, Huron avenue and North Cambridge districts as well as to the communities of Arlington, Belmont and Watertown, who are all served by the lines of this company, and a large number of whom use the Cambridge subway daily in going to and from Boston. These communities appeared through their selectmen, town counsel, boards of trade and improvement associations, in opposition to the granting of this petition, not only because of the delay and inconvenience to through passengers involved in the present case, but because the installation of a station at Dana street would be merely the entering wedge for the installation of additional stations at other points, and would thus tend to destroy the very purpose for which this subway was constructed.

The Board of Railroad Commissioners in its report and order,

already referred to, relative to station locations on the Cambridge subway, summed up its conclusions in the following language: —

While an additional station at or near Portland street would doubtless be a convenience and save a short delay to a comparatively limited number of patrons, yet such a station would inconvenience and delay a much larger proportion of users of the subway. This argument, in the opinion of the Board, is conclusive against more than one station at this time in Cambridge east of the Central square station, for to install another would be to sacrifice the time and convenience of the many to the time and convenience of the few. The station at or near Kendall square and the station at or near Central square will, with the surface lines of the company, afford a reasonable and adequate rapid transit accommodation for patrons having occasion to make use of its lines in either direction between those points.

The reasons that lead the Board to this determination apply with equal, if not greater force, to the situation at Dana Hill, a residential section solely. A station at or near Harvard square and a station at or near Central square, with the surface lines of the company, will afford a reasonable and adequate rapid transit accommodation to patrons having occasion to make use of its lines in either direction between these points.

After careful consideration of the actual conditions of operation since the subway was constructed, and a review of the entire case upon all the evidence now available, the Commission concurs in the conclusion reached by the Board of Railroad Commissioners, and is of the opinion that the installation of an additional station on the Cambridge subway at or near Dana street would not be in the general public interest. It is, therefore,

*Ordered*, That the petition be dismissed.

By the Commission,

ANDREW A. HIGHLANDS,

DECEMBER 30, 1916.

[P. S. C. 765]

*Secretary.*

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*In the matter of the petition of citizens of Somerville relative to the service on the Boston Elevated railway.*

*Memorandum.*

In this matter complaint was made as to the inadequacy of service — first, between Somerville and Boston; second, between different parts of Somerville; and third, between Somerville and

adjacent cities and towns. The first complaint was taken up with the Elevated Railway officials and additional service was furnished. The second complaint has been obviated as far as possible without the building of new lines, which, on account of the narrowness of the streets and the steepness of the grades through which it would be desirable to construct and operate these lines, does not seem feasible. As to the third complaint, certain rearrangements of service have been made which afford more convenient facilities for travel between certain portions of Somerville and points on the Cambridge subway and the surface lines operated to and through Cambridge. Other suggestions made for more direct service between Somerville and adjacent cities and towns involve the granting of new connecting locations and must, therefore, await the action of the local authorities.

The case is, therefore, ordered to be placed on file.

For the Commission,

ANDREW A. HIGHLANDS,

MARCH 31, 1916.

[P. S. C. 429]

*Secretary.*

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*Petition of the Selectmen of Agawam and others relative to service on the Springfield street railway.*

*Memorandum.*

This petition relates to inadequacy of service furnished by the Springfield Street Railway Company. The matters complained of were referred to the Inspection Department of the Commission for investigation and report and a satisfactory adjustment thereof has been made. (See letter of Mr. Daniel J. Collins, Chairman of Selectmen of Agawam, dated September 14, 1916.)

The case is, therefore, placed on file subject to its being brought to the attention of the Commission at any future time by any interested party.

For the Commission,

ANDREW A. HIGHLANDS,

SEPTEMBER 22, 1916.

[P. S. C. 1331]

*Secretary.*

*Petition of residents of North Fairhaven relative to service on the Oxford line of the Union Street Railway Company in the town of Fairhaven.*

The petitioners in this case complain of the service furnished by the Union Street Railway Company between the transfer station in New Bedford and the section of the town of Fairhaven known as Oxford and ask that the company be compelled to use double truck cars on this line, instead of the single truck cars which it is now operating. They claim that in using single truck cars the company is violating the terms of its location grant and, also, that the cars are not kept clean or in good repair and are uncomfortable and inadequate to the needs of the service.

It appears that in 1895 the location grant for the tracks in Fairhaven was renewed under certain restrictions and conditions. One of the obligations imposed upon the company at the time was as follows: —

6. To use upon its lines between New Bedford and Fairhaven only such cars of late construction as are in good repair and equipment, and all cars in use during the cold weather shall at all times be comfortably heated.

The petitioners argue that the cars in use on the Oxford line are not "cars of late construction."

The duty of the Commission under the law is to determine whether or not the equipment, appliances and service, in general, which is afforded is in any respect "unjust, unreasonable, unsafe, improper or inadequate" (St. 1913, c. 784, § 23) and conditions relating to such matters which may be imposed in grants of location have, it seems, no controlling force so far as its duties and powers are concerned (see *Board of Survey of the Town of Arlington v. Bay State Street Railway Company*, recently decided by the Supreme Court). The local authorities are primarily responsible for agreements of this nature, but in this case they do not seem to have felt that the occasion demanded official action. At the same time, the Commission is disposed to give due consideration to the condition in question in judging the character of the service.

The Union Street Railway Company for some years has paid regular dividends of 8 per cent per annum. While the company alleges that the Oxford line fails to earn fixed charges, the figures submitted to prove this contention were based on averages with no allowance for the fact that the first cost of single truck cars



and the cost of operation is materially less than in the case of larger cars. Upon the whole, it seems probable that this short line earns its due proportion of interest and taxes and, perhaps, some profit. But, at all events, this line is but a part of a compact city system which yields as a whole an excellent return and all its patrons have a right to expect reasonable and adequate service.

The single truck cars in use on the Oxford line are of a type which a street railway company would not be apt to adopt at the present time and are not well suited to the usual requirements of modern service. They are inferior in speed, carrying capacity and riding qualities. Many such cars, however, are still in service in Massachusetts and their use must be judged by the conditions which they are called upon, in any particular case, to meet. So long as adequate seating capacity and the means for safe and reasonably comfortable and expeditious transportation are provided, the type of car is of secondary importance.

Conditions on the Oxford line have been investigated by the inspection department of the Commission and its report is on file in the records of the case. The line is short (about two and one-third miles) and the question of speed is relatively unimportant. While the cars in use were originally constructed about 20 years ago, some of them have recently been renovated and the department found all of them to be maintained in good condition. Complete passenger counts made by the department on four days in March and April, under varying weather conditions, showed that the loads carried rarely exceeded the seating capacity of the cars. Occasionally, no doubt, loads are excessive, but there is no evidence which would justify a finding that the seating capacity is now inadequate. Track conditions are open to serious criticism. The department found that joints are becoming prominent in many places and that the general surface conditions on the bridge between New Bedford and Fairhaven are such as to cause the single truck cars to oscillate badly.

Taking into consideration the character of the line and the conditions found by the inspection department, the single truck cars seem to be meeting, for the present, all reasonable requirements with one exception, although it seems clear that, if traffic on the line continues to grow, larger cars will be necessary at no distant date, a contingency which the company must be prepared to meet. The exception at present is comfort of travel. A single truck car, even more than a double truck car, requires for proper operation good roadbed and rails. At present, it can

hardly be claimed that the track on the Oxford line meets this requirement.

The company's statement in regard to this situation is as follows: —

The track on the New Bedford-Fairhaven bridge is in bad condition, largely due to worn out joints. An entire renewal of this track would be advisable as soon as the City undertakes the repair of the highway surface, which is also badly needed. This highway repair is in contemplation by the City, but it is impossible to say when it will be undertaken. It is a case of "doing it next year" each year. This company, however, has now determined that in any event the joints should be renewed this summer, and the work will be done in August. It is doubtless true that defects in track are more evident to the passenger in a single truck than in a double truck car.

In view of this attitude on the part of the company, it seems unnecessary to make any formal order at this time. The Commission reserves the right, however, if it should later appear that the company is not taking the steps contemplated and requisite to place the roadbed and track in good physical condition, or if growing traffic should render the present service inadequate, to reopen the case for further action. Subject to this reservation, the petition is dismissed.

By the Commission,

ANDREW A. HIGHLANDS,

AUGUST 2, 1916. [P. S. C. 1276]

Secretary.

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*Petition of residents of Worcester relative to inadequate service on the Grafton and Westborough lines of the Worcester Consolidated street railway.*

*Memorandum.*

This matter was referred to the inspection department of the Commission for investigation and later was taken up at a conference with representatives of the Worcester Consolidated Street Railway Company and the complainants, at which an adjustment of the matters of complaint was made.

The case is, therefore, placed on file subject to its being taken up at any future time at the request of the petitioners.

Attest: ANDREW A. HIGHLANDS,

NOVEMBER 23, 1916. [P. S. C. 1527]

Secretary.

*Petition of patrons of the Boston, Revere Beach and Lynn railroad and the Point Shirley street railway relative to a five-cent fare on those lines between Point Shirley in the town of Winthrop and Boston, and for better service on the Point Shirley street railway.*

*Memorandum.*

The complaint of the petitioners with respect to service on the Point Shirley street railway related principally to irregularity of operation during the winter months. At the hearing it was agreed that the parties in interest should confer with a view to reaching a satisfactory adjustment of the matter. Assurance having been given by the company that every effort will be made to remedy certain defects in the track and to give a more reliable service next winter, this part of the petition is placed on file, subject to the right of any interested party to bring the matter complained of to the attention of the Commission at any future time.

The petitioners also request the establishment of a five-cent fare between the terminus of the Boston, Revere Beach and Lynn railroad in Boston and the terminus of the Point Shirley street railway in Winthrop in place of the present fare of ten cents, consisting of a five-cent fare charged by each company. Counsel for the selectmen of Winthrop, in which town the tracks of the Point Shirley Street Railway Company are located, appeared at the hearing and opposed the granting of the petition on the ground that a reduction in fares would result in a depreciation in real estate values in the territory served.

The Boston, Revere Beach and Lynn Railroad Company is, under legislative authority, the owner of the stock of the Point Shirley Street Railway Company. The petitioners claim that since the street railway is, in substance, a branch of the railroad, the fare between Point Shirley and Boston should not exceed the fare between other parts of the town, located on the line of the railroad, and Boston.

In view of the lack of unanimity of opinion between the petitioners and the selectmen of Winthrop as to the desirability of a five-cent fare to Point Shirley being established, the petitioners suggested that action by the Commission be deferred until the matter could be brought before the town for discussion and action. It appears unnecessary, therefore, for the Commission to consider at this time the question at issue, or the legal aspects

thereof, and that part of the petition will be placed on file subject to the right of the petitioners, or other interested party, to bring the matter to the attention of the Commission at any future time.

By the Commission,

SEPTEMBER 12, 1916.

[P. S. C. 1301]

ALLAN BROOKS,

*Assistant Secretary.*

#### TELEPHONE AND TELEGRAPH SERVICE.

##### INVESTIGATION, UPON MOTION OF THE COMMISSION, RELATIVE TO EXTENSION TELEPHONES AND THE CHARGES THEREFOR.

Upon its own motion, the Commission has investigated the charges for extension telephones made by the telephone companies operating in the Commonwealth.<sup>1</sup> In connection with this investigation, public hearings were held after due notice.

At the present time, the regular charge of the New England Telephone and Telegraph Company, which controls by far the greater portion of the telephone business of the Commonwealth, for an extension telephone is six dollars per year in all classes of service, except in connection with unlimited business telephone service in the "central district" of Boston, where the charge is nine dollars per year. The Automatic Telephone Company of New Bedford, the only independent company of importance, charges nine dollars per year in the case of business service, and six dollars per year in the case of residence service. The other companies operating in the Commonwealth, all of them very small, have, it seems, a six-dollar rate. The New England company states that it has, in Massachusetts, slightly more than 39,000 extension sets in use with ordinary business or residence telephones and about 63,000 connected with private branch exchanges. The revenue received from this source during the year ended June 30, 1915, was \$599,338, divided as follows: —

	P. B. X. Extension Sets.	Other Extension Sets.
From \$6 rate on measured service, . . . . .	\$268,170	\$55,576
From \$6 rate on unlimited service, . . . . .	25,632	153,961 <sup>2</sup>
From \$9 rate on unlimited service, . . . . .	-	23,337
Miscellaneous, . . . . .	72,662	-
	\$366,464	\$232,874

<sup>1</sup> For the report of the Commission to the General Court under chapter 42, Resolves of 1915, for investigation as to the expediency of legislation relative to extension telephones and telephone charges, see page 455.

<sup>2</sup> Includes several hundred old-fashioned sets at \$5 used very largely on rural lines.



The "miscellaneous" item consists of the revenues received from certain extension sets operated on a prepayment basis in apartment houses and hotels where part of the toll prepaid goes to the company and part to the house. This form of service is obsolete and will soon be entirely discontinued. The total operating revenues of the New England company for the year 1915 amounted to \$18,821,436.26.

In justification of its present charges, the New England company rests its case upon four main contentions: —

(1) It claims that the charges of other telephone companies throughout the United States for extension sets are no less than its own charges and in many cases greater.

(2) It claims that such charges in a number of cases have been approved, either directly or indirectly, by commissions of other states.

(3) It claims that its present charges are, upon the whole, below cost plus a reasonable return upon the investment.

(4) It claims that its present rate schedule has been worked out with great care as a well-balanced whole and "that unless any particular rate stands out in some way as clearly unreasonable or unfair it should not be disturbed, except in connection with a general change."

#### *Charges of Other Companies.*

The first of the above contentions is, so far as the Commission can ascertain, sustained by the facts. An exception, which the company noted in part, exists in the case of the New York Telephone Company, which charges in the case of private branch exchanges: —

	Per Year.
For each of the first ten instruments, . . . . .	\$6 00
For each of the second ten instruments, . . . . .	4 80
For every additional instrument, . . . . .	3 60

#### *Approval by Other Commissions.*

With respect to the second contention, it appears that commissions of several other states have approved general rate schedules containing rates of \$6 or more per year for extension sets. It does not appear, however, that in such cases the extension set rates were given any special consideration. In two other cases, however, extension set rates have been separately passed upon. In a recent case before the New York Public Service Commission of the Second District, decided June 9, 1915, the complaint of an individual against a charge of 50 cents per

month, or \$6 per year, was dismissed. In a similar case before the Public Service Commission of Nevada, decided June 5, 1915, the charge was reduced from \$12 to \$6 per year. The New York case is hereinafter considered.

*The Question of Cost.*

The New England company submitted to the Commission, under oath, the results of a study of 600 work papers said to have been selected at random from all parts of its territory in Massachusetts, purporting to show that the average investment per extension set, including installation cost, is \$7.92. The detailed figures are as follows: —

*Average Cost Installed.*

I. Apparatus (exclusive of receiver, transmitter and coil), as shown from more than 600 work papers (costs taken from official price book), . . .		\$4 13
Supply charge (includes teaming from supplier to freight depot, freight or express to destination, teaming to stock room, handling, storehouse expense, records, disbursing supplies, loss breakage, etc., 8.6 per cent of \$4.13), . . .		36
Total average apparatus cost (exclusive of receiver, transmitter and coil), . . .		— \$4 49
II. Installation: —		
(1) Miscellaneous material (including wire, staples, cleats, tape, screws, solder, tubing, ground clamps, ground rods, etc.), . . .		79
(2) Voucher expense (including car fares, railroad fares, teams, meals and incidental expense, <i>e.g.</i> , painting or moulding), . . .		06
(3) Field labor installing (installers), . . .		\$1 09
Chief installation foremen, foremen, inspectors, wire chiefs, head installers; also holiday, vacation, bad weather and other time not showing on work papers (all field labor), . . .		35
		—
		\$1 44
Superintendence ( <i>i.e.</i> , general plant superintendent, division plant superintendent, district plant chief and their office forces, cashiers, stenographers and clerks; also plant accounting department and engineering, 14.86 per cent of \$1.44), . . .		21
Labor installing, . . .		— 1 65
Total cost installed, . . .		\$6 99

III.	General investment in supplies apportioned (apportioned to extension set in proportion of extension set investment to total plant investment per station), . . . . .	\$0 02
IV.	General equipment investment apportioned (tools, teams, automobiles, motor cycles and stock room fittings, etc., average, \$2.17 per station, apportioned to extension sets in ratio of extension set investment to total plant investment per station, <i>i.e.</i> , \$6.99 to \$138.67), . . . . .	11
V.	Working capital apportioned (average working capital apportioned to extension set on ratio total expense to extension set expense), . . . . .	80
Total extension set investment, . . . . .		<hr/> \$7 92

It will be noted that these investment figures include, not only the cost of the apparatus and the installation expense, which together amount to \$6.99, but also an apportionment of the company's "working capital" and of its investments in "supplies" and "general equipment," the latter including tools, teams, automobiles, etc. The propriety of including these latter items, more particularly the apportionment (amounting to 80 cents) of "working capital," may be doubted. The company's accumulated surplus (\$3,645,246.99) seems quite sufficient to provide all the working capital which it needs, and certain funds are, indeed, provided by the subscribers directly through advance payments. Besides, the apportionment is made on the basis of the estimated annual expense per extension set, and is, therefore, open to the same objections to which this estimated expense is open (see below).

The cost of apparatus and installation expense figures have, in some measure, been checked by the Commission's telephone department through an independent examination of working papers and seem, on the whole, fairly to represent average conditions. The value of the figures, however, is impaired by the fact that the apparatus is not purchased in the open market but under an exclusive contract from the Western Electric Company which, like the New England Telephone and Telegraph Company itself, is a subsidiary of the American Telephone and Telegraph Company. This contract was given in full in the special report made by the Commission to the House of Representatives last year (House, No. 1856), in which it recommended a general inquiry into the whole telephone situation. Certain testimony at the public hearings, while the Commission does not wish to attach too much weight to it in the absence of thorough investi-

gation, at least illustrates the desirability of such investigation. It seems that the receiver, transmitter and induction coil used on instruments supplied to subscribers by the New England company are leased from the parent company, the American Telephone and Telegraph Company, the New England company paying each year as compensation for these parts and for certain services,  $4\frac{1}{2}$  per cent of its gross receipts (see House, No. 1856 of last year, pp. 5 *et seq.*). In estimating the annual expense per extension telephone (see below), the company thought it necessary to determine the portion of this rental ascribable to the receiver, transmitter and coil of each such instrument. It endeavored to do this by estimating what it would have paid in interest, taxes, depreciation and maintenance each year if it had bought these parts outright. Later in the proceedings independent manufacturers testified under oath to the cost of similar parts of their own make, which they claim are equal or superior to those used on the New England company instruments. The two sets of figures compare as follows: —

	Company Figures.	Independent Figures.
Cost of receiver, . . . . .	\$1 14	\$0 50
Cost of transmitter, . . . . .	1 50	80
Cost of coil, . . . . .	$34\frac{1}{2}$	25
Total, . . . . .	\$2 98 $\frac{1}{2}$	\$1 55

The figures submitted by the independents, except in the case of the receiver, are factory costs which do not include profit and are not, therefore, strictly comparable to the company's figures. Allowing for this fact, however, the discrepancy is still great.

In addition to the investment estimate, the company also submitted figures purporting to show the average annual expense ascribable to an extension telephone, including a return of 7 per cent upon the investment. Summarized, these figures are as follows: —

Average annual plant costs, . . . . .	\$3 24
Average annual traffic costs, . . . . .	2 01
Average annual commercial costs, . . . . .	75
Average annual general costs, . . . . .	34
Return on investment of \$7.92 at 7 per cent, . . . . .	55
	<hr/>
	\$6 89



Taking these items up in order:—

I. *Annual Plant Costs, \$3.24.*—These costs are subdivided as follows:—

Station repairs, . . . . .	\$1 10
Station removals and changes, . . . . .	82
Depreciation of apparatus, . . . . .	45
Receiver, transmitter and coil, . . . . .	75
Taxes, . . . . .	12
<hr/>	
Total, . . . . .	\$3 24

The first two items, according to the company's explanation, are obtained by dividing the total annual expense for routine repairs on station equipment and for the removal and change of stations (including, apparently, all wiring and fixtures both inside and outside up to the point of connection with the street lines) by the total number of stations, reckoning every telephone instrument as a separate station. This assumes that these items of expense are as great in the case of an extension station as in the case of a main station. In other words, it assumes that, under average conditions, if a subscriber with a single telephone adds an extension set these items of expense are doubled. This assumption was not supported by any concrete evidence and is, we believe, unwarranted. The working papers of the company fail to distinguish between main stations and extension stations and it would require, to determine the relative costs and expenses with anything like accuracy, a prolonged examination of books and records and perhaps the making of new records. The judgment of the Commission's telephone department, however, based on general experience, is that the cost of main telephone installations is probably twice as great, on the average, as the cost of extension telephone installations and that the expense of routine repairs, removals and changes must vary in like proportion.

The third item is based upon the estimated cost of the apparatus (\$4.49) and upon the assumption that its life is but ten years, so that a 10 per cent depreciation charge is necessary. How far this assumption is justified we are unable to state without extensive investigation. The company stated that it is prepared to submit figures to prove its contention, but has not as yet produced them. We are informed that in Chicago an investigation showed a life of fifteen, instead of ten, years. The large annual depreciation charge made by the company, amounting last year to \$3,890,102.27, or about 30 per cent of the total

operating expense, is a matter deserving of consideration in any general telephone inquiry.

The fourth item has already been explained in part. It consists of 7 per cent interest, 10 per cent depreciation and 1.7 per cent taxes upon the estimate (\$2.98½) of what the receivers, transmitters and coils used in the extension sets would have cost, if they had been bought outright instead of being leased, plus 20 cents for repairs. The latter amount is confessedly a mere guess, as the repairing is done by the lessor company. The whole computation of this item is, we believe, fallacious. Under the somewhat unusual system of leasing in vogue, the rental paid to the parent, or lessor, company, is based, not upon the number of receivers, transmitters and coils supplied, but upon gross receipts. Extension sets can add to this rental charge only so far as they add to gross receipts. So long as the receipts are six dollars per year per instrument, the entire rental charge ascribable to each instrument is but 4½ per cent of this sum, or 27 cents, and not the 75 cents (plus an additional amount reckoned under "Annual General Costs") which the company claims. If the yearly rate for extension sets should be decreased, the rental charge would be decreased in proportion.

The fifth item, taxes, seems correct, in so far as the estimated investment is correct (see above).

II. *Annual Traffic Costs, \$2.01.* — This item consists of an apportionment of the expense of carrying on the telephone service, including wages of operators, power, inspection, superintendence, etc. It is based upon the theory that an extension set increases the normal number of calls 25 per cent and to that extent burdens the service and increases expense. The company's statement on this point is as follows: —

The addition of an extension set unquestionably tends to increase the calling rate. This increase varies in different cases. It is impossible to state accurately what the average increase is. A study made by the New England Telephone and Telegraph Company of between 600 and 700 cases indicated an average increase of 25 per cent. Accordingly, in undertaking to arrive at a fair estimate of the proportion of traffic expense properly chargeable to an extension set, we have apportioned 25 per cent of the average per main station.

The data upon which this estimate of 25 per cent is based are not wholly convincing and it appears that in a similar study in New York State the percentage was fixed at 15 per cent. However, it is clear and is, indeed, admitted by the company, that

it is unfair to include this apportionment of traffic expense in determining the rates to be charged for an extension set in the case of measured service. If a subscriber having such service exceeds, because he has an extension set, the number of calls to which he is entitled without extra charge, he pays for the excess at so much per call. There is not the slightest reason why he should make a further payment for these excess calls through the yearly charge for the extension set. In the case of unlimited service, the company's argument is more reasonable. At the public hearings counsel for the company made the following statement in this connection (Record, p. 146): —

I want to say one word in connection with the question which was asked by one of the Commissioners, and that is, indicating a possibility of a differentiation in connection with measured service sets and flat service sets. As I said the other day, if there is to be any differentiation, that we must fairly admit would be one of the logical places to make a change.

III. *Annual Commercial Costs, 75 Cents.* — These include the cost (34 cents) of the directory which is supplied with every instrument and an apportionment (amounting to 41 cents) of the expense of administration, revenue, accounting and collecting, canvassing and advertising and uncollectible accounts. The apportionment is made in the ratio of the revenue received per extension set to the total operating revenue. Such an apportionment is purely arbitrary and involves reasoning in a circle. Under the theory followed, if the yearly charge for an extension set should be reduced, the expense would be correspondingly reduced. Furthermore, as a practical matter, there seems no very clear reason why the installation of extension sets should add to the items of expense which are so apportioned.

IV. *Annual General Costs, 34 Cents.* — These include all expenses not directly chargeable either to the plant, traffic or commercial departments and include the expenses of all general offices, accidents and damages, pensions, etc., as well as, to use the company's words, "the payment to the American Telephone and Telegraph Company for all services and equipment less the amount deducted for equipment (*i.e.*, receivers, transmitters and coils) at 75 cents per set." The apportionment is made as in the case of the commercial costs above described. It has already been shown that the entire apportionment of the payment to the parent company which is chargeable to extension sets cannot be more, at the present rates, than 27 cents per set and

would be less if the rates were reduced. As for the other expenses covered by this item of 34 cents, the comments above made in the case of commercial costs are equally applicable.

V. *Return on Investment, 55 Cents.* — This is not strictly an expense, but a profit. It is figured at 7 per cent on the total estimated investment of \$7.92 per extension set (see above), including the apportionment of working capital and making no allowance for depreciation in the investment. What it involves is indicated roughly by the following computation: The total investment of the company in fixed capital (*not including the investment in securities of other companies or deducting depreciation*), plus the \$2,000,000 allowance for working capital, as figured by the company, was \$70,448,537.13 on June 30, 1915. A 7 per cent return upon this investment would amount to \$4,931,397.60. Adding the \$275,702.78 of non-operating income during the year ended on that date and deducting *all* interest and rental charges, amounting to \$902,157.71, leaves \$4,304,942.67, or very nearly 10 per cent upon the capital stock of \$43,261,200.

In a note following this estimate of the annual expense per extension telephone, the company states that the amount "would be substantially increased by allotting to the extension set its proportionate share of the expense of General Office Building, Central Office Buildings, Switchboards, Terminal Rooms, etc." Upon examination it proved that the company meant, not the annual *expense* chargeable to these buildings, etc., but the *investment*. The *expense* has, it seems, been apportioned in the company's estimate of extension set expense. In other words, the argument is that the investment per extension set, which is estimated at \$7.92, ought to be increased by an apportionment of the investment in office buildings, etc. While, if the theoretical apportionment of costs is to be carried to extreme limits, there may be some basis for this argument, as a practical matter there seems little reason to believe that the installation of extension sets actually necessitates any increase in the investment in such buildings. Moreover, the total amount involved, if reduced to terms of annual expense per extension set, would be small.

#### *The Rate Schedule as a Whole.*

The company states that it does not base its rates upon cost alone, although cost is the controlling factor, but attempts to adjust its rate schedule as a whole to the general convenience of the community. Service is given to certain classes of subscribers at a loss, if we understand the claim correctly, upon the



ground that it is of general advantage that such service should be supplied. Thus, service is given, it is said, to subscribers in rural communities at rates below the general level. The existing rate schedule, the company claims, has been very carefully worked out and is "more proportionately balanced and better balanced far and away than it ever was before." It urges that no particular rate which does not stand out in some way as clearly unreasonable and unfair should be disturbed, except in connection with a general change. As for the extension set rate it says (Record, p. 51): —

Now if we had to-day — if there were available surplus revenue to make reductions in our rate schedule, we have in mind two places where, by all odds, any reductions, as we see it, should go. This should be one of the last places, as it seems to us, if there was any money available, to make any reduction in rates.

#### *The New Bedford Situation.*

The Automatic Telephone Company of New Bedford submitted evidence at the public hearings to show that the telephone instruments which it uses, because of the automatic device, cost very much more than the ordinary instrument used by the New England company. It was stated that the automatic instruments cost \$12.50 apiece, exclusive of any wiring, attached fixtures or installation expense, and this was offered as a reason why the rates of this company for extension sets ought not to be reduced. It should also be noted that the rates are based upon unlimited service; it has no measured service. No subscriber of this company appeared at the hearings to advocate any reduction.

#### *Conclusions.*

The fact that the prevailing rates for extension sets throughout the United States are as high as or higher than those charged by the New England Telephone and Telegraph Company, while deserving of consideration, is not convincing evidence that no reductions ought to be made. It does not appear that any particular investigation of these rates has been made by commissions of other states, except in the two instances already mentioned. In the Nevada case the rate was cut in two, as drastic a first step as could well be expected. In the New York case, an examination of the decision shows that the distinction between extension sets used in connection with measured service and those used in connection with unlimited service was not taken into

consideration. Much stress was laid upon the increase in the normal number of calls caused by extension sets.

With respect to the question of cost, the Commission has not thought it advisable, in view of the possibility of a general telephone inquiry in the near future, to undertake at this time any very detailed analysis of the figures submitted. To have done so would have required a prolonged research hardly warranted apart from a thorough investigation of the entire rate schedule. The analysis which the Commission has made, however, is sufficient to lead it very definitely to the conclusion that the present rates for extension telephones are a source, upon the whole, of large profit to the company; and this is especially true of such telephones when used in connection with measured service. The figures submitted, both those representing investment and those representing annual expense, are considerably higher, in the judgment of the Commission, than the facts justify. Even if all other figures should be accepted, and many of them (as shown above) are open to question, the unwarranted inclusion of traffic costs in the case of measured service accounts for an excess of the estimated above the real expense of slightly more than \$2 per year.

It is important in this connection to have a clear understanding of the function of an extension telephone. While it adds to the convenience of a subscriber, it does not, strictly speaking, add to his service. The extension set supplies an additional mouthpiece to a subscriber's trunk line, but the number of messages which it is possible for him to send or receive is not thereby increased. An analogous illustration is the case of a single electric light which can be turned on and off by two or more buttons located at different points. The extra buttons add to convenience but do not increase the amount of light which it is possible to receive. In the case of measured service the message rates are adjusted, we assume, so that a subscriber, if he increases the number of his calls, compensates the company (by the additional revenue which he pays) for any increased expense involved. So far as traffic costs are concerned, it can make no conceivable difference to the company whether the additional calls are made through an extension telephone or through a main telephone. The two instruments afford alternative entrances to the trunk line and it is impossible to use both of them at the same time. In the case of unlimited service, where no additional charge is made for additional calls, it is perhaps reasonable to assume that

the service rate is adjusted to the normal use of a single instrument, and that the charge for an extension set should include some compensation for the additional burden which such an instrument may impose upon traffic.

In considering telephone rates there is, furthermore, another fact to be taken into consideration which has not, so far, been mentioned at all. Extension sets are, from one point of view, a distinct advantage to the service and tend in an important respect to decrease expense. This is illustrated by the statement made by counsel for the company at the public hearing, as follows (Record, p. 74):—

I think it is a mighty good thing for the company to have extension sets. This gentleman here, or somebody, mentioned that this morning, and I thought the point was well taken. It does, to a certain extent, release the line from being tied up so much; it enables the calls to be answered more promptly and the line to be released quicker.

In view of the fact that the company is endeavoring in every way, from motives of economy and efficiency, to expedite the service and to save fractions of seconds, even, in the handling of calls, this effect upon service is of no small consequence and tends to offset any increased expense which extension sets may impose in other ways upon the company. It is, we believe, to the advantage of the company to encourage their use, both in offices and in residences.

In arriving at its conclusions in this matter the Commission has been influenced by the fact that it has recommended a general inquiry into the whole telephone situation (see 3d Annual Report, pp. xxviii, xxix, and xxxii) and that the present general court may authorize such an inquiry and provide adequate funds therefor. As shown above, in the consideration of extension telephone rates several matters of general significance are involved, such as the relations of the New England Telephone and Telegraph Company to the Western Electric Company and to its parent company, the American Telephone and Telegraph Company, the investigation of which could be made to better advantage in connection with such a general inquiry. The Commission also recognizes the weight of the argument made by the company that no particular rate ought to be disturbed in advance of an investigation of the rate schedule as a whole, if one is to be made. Under the circumstances, and until it is known whether or not the Commission is to be placed in a position

where it can undertake such an investigation, it is disposed to agree with the company that no very radical change in any particular rate ought to be required and no change at all unless the reasons are very clear and strong. Applying this principle, there seems to be no sufficient reason at the present time for ordering or recommending a change in the charges for extension telephones used in connection with unlimited service, although it may ultimately prove that a reduction in these rates is just and reasonable.

Nor does the Commission feel that it is expedient, at the present time, to require a change in the charges for extension telephones used in connection with private branch exchanges, even where the service is measured. If the company's contention is sound, that there are cases where it is desirable in the public interest to conduct certain branches of the service at less than cost, it may also be argued with some force, we are inclined to believe, that subscribers who use private branch exchanges are as well situated as any class of subscribers to carry at least a portion of the burden. In general, they are, it seems, the subscribers who secure the maximum benefit from widespread telephone connections. At all events, the status of private branch exchange subscribers and the principles which ought to influence their rates may well be left for consideration in connection with a general telephone inquiry.

When it comes, however, to extension telephones used in connection with measured service by the smaller subscribers who do not have private branch exchanges, while the Commission does not think it desirable at this time to attempt to reduce the charge to the basis of exact cost, it does feel that the evidence is very clear and strong that the present rate is unreasonably high and that the company ought to be required to make some reduction at the present time, in advance, even, of any general inquiry into the rate schedule as a whole. There can be no doubt whatever, we believe, that a rate of four dollars per year per instrument would yield ample profit to the company, and the Commission is also of the opinion that such a change could in no way prejudice a future readjustment of the entire rate schedule, but would, indeed, operate to the advantage not only of subscribers but of the company itself. The Commission has, therefore, issued an order, which is attached hereto, directing the New England Telephone and Telegraph Company to reduce the present charge for extension telephones used in connection with measured serv-



ice by subscribers who do not have private branch exchanges from six dollars to four dollars per year.

In the case of the other companies operating in the Commonwealth, which, with the exception of the Automatic Telephone Company of New Bedford, are all very small, it appears that the service is in every case unlimited. The Commission, therefore, for the reasons given above, recommends no change at the present time in their charges for extension telephones. In the case of the Automatic Telephone Company of New Bedford, it also seems to be the fact that the instruments used by this company cost considerably more to both install and to repair than the ordinary telephone instruments.

By the Commission,

ANDREW A. HIGHLANDS,

[P. S. C. 923]

*Secretary.*

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ORDER.

*In the matter of the investigation, upon motion of the Commission, relative to extension telephones and the charges therefor.*

The Commission having, upon its own motion, investigated charges made for extension telephones by telephone companies operating in the Commonwealth, and having, on the date hereof, made and filed a report containing its findings of fact and conclusions thereon, which said report is hereby referred to and made a part hereof, — it is

*Ordered*, That the New England Telephone and Telegraph Company be hereby notified and required to establish, throughout the territory which it serves in this Commonwealth, within thirty days of the date hereof, upon not less than five days' notice to the Commission and the general public, by plainly printing and filing, in the manner prescribed in section 20 of chapter 784 of the Acts of 1913, a schedule amending its existing charges for all extension telephones installed at measured service stations and not used in connection with private branch exchanges, so that the charge for any such extension telephone shall be at a rate not greater than \$4 per annum.

It is

*Further ordered*, That the New England Telephone and Telegraph Company terminate any contract or contracts which are

or become terminable by notice and which are inconsistent with the terms of this order.

It is

*Further ordered*, That a copy of this order be filed with said schedule at the office of the Commission and that a copy hereof be forthwith served upon the New England Telephone and Telegraph Company.

Attest:                   ANDREW A. HIGHLANDS,  
MARCH 20, 1916.      [P. S. C. 923-A]                   Secretary.

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*Petition of the Selectmen of the town of Sturbridge relative to reduction in toll rates by the New England Telephone and Telegraph Company between Sturbridge and Southbridge.*

This was a petition by the selectmen of Sturbridge praying that the present toll charge of five cents between subscribers in that section of the town of Sturbridge known as "Fiskdale" and the subscribers within the exchange territory of Southbridge, be abolished.

A public hearing was granted by the Commission, at which the selectmen of the town of Sturbridge appeared for the petition. The evidence shows that the situation at Fiskdale is a very unusual one, there being but four cases of this kind in the state.

At Fiskdale, there are now 42 subscribers including four pay stations. Ordinarily, owing to the small number of subscribers, they would be attached to the nearest physical exchange, in this case Southbridge, paying, in addition to the rates in force in Southbridge, regular mileage charges as applied in other sections of the state, the limit being one mile on business telephones, two miles on residence telephones and six miles on rural lines. In lieu of this, an exchange territory was created in 1902 to include the town of Sturbridge and service was furnished through a local switching agency at Fiskdale for a period of six years, the number of subscribers during that period reaching 35.

In 1908, owing to dissatisfaction with the service, the subscribers were given the choice of accepting a potential exchange or being attached to the Southbridge exchange with the extra mileage charges. The establishment of a potential exchange meant simply that the switching would be done at Southbridge instead of the local arrangement at Fiskdale. Thirty-three out of the 35 subscribers voted for the potential exchange, which

has since been maintained with continuous service, as against part time service under old conditions. Under these arrangements, a toll charge of five cents applies on Southbridge calls. At Sturbridge proper there are some 32 subscribers who are connected with the Southbridge exchange, and the Southbridge toll of five cents applies to calls from subscribers in the Fiskdale portion of Sturbridge to those in Sturbridge proper, with whom the Fiskdale subscribers also desire to have free service.

The present schedule applied to Fiskdale, which calls for a five-cent toll to Southbridge, is in accordance with the general rate schedule filed with the Commission and cannot be disturbed in this one instance without discrimination against other communities. However, the conditions prevailing in this particular territory are in one respect abnormal. Under ordinary conditions telephone subscribers in the various communities of a town would be afforded free service one with the other, which is not the case here. The Commission is, therefore, of the opinion that no principle of the prevailing system of rates will be violated if the subscribers within the area of the potential exchange at Fiskdale are given free service with all other subscribers within the town of Sturbridge.

Therefore, it is

*Ordered*, That the New England Telephone and Telegraph Company be hereby required to furnish to subscribers within the area of the potential exchange at Fiskdale service without extra charge to all other subscribers within the town of Sturbridge.

By the Commission,

ALLAN BROOKS,  
*Assistant Secretary.*

MARCH 2, 1916. [P. S. C. 1201]

## BOSTON AND MAINE REORGANIZATION.

*Petition of the Boston and Maine Railroad for extension of the operation of the first seven sections of Chapter 380 of the Special Acts of 1915, being an Act relative to the reorganization of the Boston and Maine Railroad system.*

WOODWARD HUDSON for Boston and Maine Railroad.

HENRY B. DAY and CHARLES P. HALL, of the board of trustees, Boston and Maine Railroad.

PHILIP DEXTER for the directors of the Boston and Lowell Railroad Corporation.

E. W. BURDETT for the Fitchburg Railroad Company.

HERBERT PARKER for the Hampden Railroad.

CONRAD W. CROOKER for the Boston and Maine Minority Stockholders' Association.

This is a petition of the Boston and Maine Railroad under the provisions of section 9 of chapter 380 of the Special Acts of 1915, which reads in part as follows:—

SECTION 9. Except as is otherwise specifically provided herein, said Boston and Maine Railroad shall be and remain subject to all provisions of the general railroad law. The special powers granted to said railroad by the first seven sections shall end on July first, nineteen hundred and sixteen: *provided, however*, that the public service commission, on application of said railroad, may extend the operation of said sections for a further period, not exceeding one year, if such commission finds it probable that within such extended time a reorganization of the Boston and Maine Railroad system consistent with the public interest may be effected.

The act of which this section is a part is entitled, "An Act to provide for a reorganization and consolidation of the railroad companies constituting the Boston and Maine Railroad system." Its chief purpose, briefly stated, is to enable the Boston and Maine Railroad to decrease the amount of its fixed charges by consolidating with all or some of its leased lines.

For a long time this Commission has believed that such a reorganization of the Boston and Maine system is eminently



desirable in the public interest and it has frequently made public statements to that effect (1st Rep. P. S. C., pp. 112-114; 2d Rep. P. S. C., pp. 80, 81; 3d Rep. P. S. C., pp. xv-xviii and pp. 578-592). Many of the provisions of the statute in question were, indeed, drafted with its co-operation. At the present time it is sufficient to say that the Commission has not altered its opinion in regard to the desirability of reorganization and that its attitude is correctly indicated by the following passage from its last annual report (3d Rep. P. S. C., pp. xvii-xviii): —

In the opinion of the Commission it will be unfortunate, not only for Massachusetts but for all northern New England, if no reorganization of this railroad system is effected. Its earnings, like those of other railroads, are now showing an improvement, under the stimulus of the war business; but it is not enough that the Boston and Maine Railroad shall be able to struggle along in its present form and in its present manner. Its system of railroads, upon which northern New England so largely depends, is distinctly below standard. It has only seven miles of rock-ballasted track in all Massachusetts; some of its more important bridges are inadequate to the proper development of its business; its passenger and freight car equipment is far from what it should be; and its terminal and junction facilities are in many cases antiquated, inadequate and inefficient. This is particularly true of the passenger and freight terminals in metropolitan Boston. If New England is to prosper as it ought to prosper, this railroad system must be transformed into a modern and efficient agency of transportation. There seems little prospect that this transformation will be effected without some such financial reorganization as the Federal trustees have been trying to bring about. No railroad is soundly organized unless it is prepared, not only for periods of prosperity, but for times of stress. The present financial structure of the Boston and Maine Railroad, with its leased lines and its disproportionate load of fixed charges, has shown its weakness in the face of adversity.

Chapter 380 of the Special Acts of 1915 provides alternative methods by which reorganization may be effected. One contemplates the use of the present Boston and Maine Railroad corporation and is the method for which provision is made in the first seven sections of the act; the other authorizes the creation of a new corporation to be used for this purpose. The steps necessary to create such a corporation have not been taken. All powers under the first seven sections, however, expire on July 1, 1916, as indicated in the section above quoted, unless this Commission extends their operation for the further period al-

lowed by the statute. Whether or not this should be done is the question raised by the pending petition.

The phraseology of section 9 calls for consideration. The Commission may extend the operation of the sections in question, if it "*finds it probable that within such extended time a reorganization of the Boston and Maine Railroad system consistent with the public interest may be effected.*" It was strongly urged by counsel for certain stockholders of the road that, before acting under this provision, the Commission ought to obtain from the directors full particulars in regard to any reorganization plan now in process of development and determine whether or not such plan as a whole and in detail is consistent, in the judgment of the Commission, with the public interest.

Upon consideration, the Commission is not of the opinion that such procedure is either necessary or desirable. As the statute is drawn, only limited supervision over the plan of reorganization has been delegated to the Commission. In large measure, and this is true of both the alternative methods, the General Court has itself determined the question of public interest by prescribing the conditions under which reorganization may take place and has entrusted the Commission with authority merely to make sure that these conditions are met. It is not to be presumed that the General Court intended to give the Commission, in connection with the extension of a certain limit of time, general powers of supervision over a tentative plan which it would not possess when the time came to carry the plan, as finally developed, into effect. Moreover, such supervision would be futile, for there could be no assurance that any tentative plan would not eventually be changed materially.

The statute as drawn contains substantial safeguards against action inconsistent with the public interest. For example, consolidations with or purchases of subsidiary companies must not result in an increase in the aggregate capitalization outstanding or in the income received by the stockholders of such companies. The consent of two-thirds in interest of all the stockholders of the Boston and Maine Railroad and of two-thirds in interest of the stockholders of the subsidiary company present and voting (but in no case less than a majority in interest of all the stockholders) must be secured in the case of each such consolidation or purchase. Neither the common nor the preferred stock of the Boston and Maine Railroad may be reduced in amount without the consent of two-thirds in interest of all

the holders of such stock. Over certain possible features of the plan this Commission is given full and independent supervision. This is particularly true in the case of the Hampden Railroad Corporation. No consolidation with or purchase of that road may be made unless the Commission approves the same as consistent with the public interest.

An attempt to repeal the statute at the last session of the General Court was unsuccessful. Since its enactment, it appears that the directors of the Boston and Maine, Boston and Lowell and Fitchburg companies and certain stockholders' committees have done much work and that certain fundamental features of a plan of reorganization have been approved by the Boston and Maine directors and have been submitted to the various groups of stockholders with encouraging responses. No claim is made, however, that the skeleton plan so outlined represents a complete or final agreement. Former Chief Justice Knowlton, the director who has publicly expressed his dissatisfaction with certain parts of the plan, has joined his fellow directors in urging that an extension of time be granted.

Upon the evidence submitted and upon its knowledge of the situation, the Commission finds that there is a reasonable probability that a reorganization which is consistent with the public interest may be carried into effect under the first seven sections of the statute within a further period of one year, if the time is so extended.

It is therefore

*Ordered*, That the operation of the first seven sections of chapter 380 of the Special Acts of 1915 is hereby extended until the first day of July, nineteen hundred and seventeen.

	Attest:	ALLAN BROOKS,
JUNE 29, 1916.	[P. S. C. 1376]	<i>Assistant Secretary.</i>

## BRIDGES — RAILROAD AND RAILWAY.

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*Motion of the directors of the Boston and Albany Railroad Company to amend decree of the Commission relative to the alteration of bridge No. 19 by which the Boston and Albany railroad passes over Franklin street in the city of Boston.*

After consideration, — it is

*Ordered*, That the decree of the Commission, dated September 22, 1914, in the matter of the alteration of bridge No. 19 at the crossing of the public way known as Franklin street and the Boston and Albany railroad within the city of Boston be hereby amended by striking out at the end of the first paragraph of said decree the following words — “in order to carry safely the heavier rolling stock now in use by said railroad company.”

Attest:                    ANDREW A. HIGHLANDS,  
DECEMBER 19, 1916.    [P. S. C. 548]                    Secretary.

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*Petition of the Selectmen of Winchester relative to the condition of the bridge at the crossing of the Boston and Maine railroad and Cross street in Winchester.*

This is a petition of the Selectmen of Winchester representing that the Boston and Maine Railroad, as lessee of the Boston and Lowell Railroad Corporation, is maintaining at Cross street, a highway in said Winchester, a bridge so constructed as to impede and obstruct the safe and convenient use of said highway, in that the bridge is supported by piers in the center of the way and also that the height of the bridge allows inadequate headroom for the passage of vehicles. The petitioners ask that the Commission order the Boston and Lowell Railroad Corporation to remedy the conditions complained of in accordance with the obligations of its charter and the laws of the Commonwealth.

The obligations of the railroad as to this bridge were before the Supreme Judicial Court for determination in the case of *Cooke v. Boston and Lowell Railroad Corporation*, 133 Mass. 185. This was an action of tort brought against the railroad by a plaintiff who was injured by being struck while riding under the



bridge on an omnibus. The railroad was held liable on the ground that under section 11 of the defendant's charter (Statutes 1830, chapter 4) it was the duty of the railroad company so to construct its railroad "as not to impede or obstruct the safe and convenient use" of a highway which it crosses. It was held by the court that this was a continuing obligation requiring the railroad "to provide against any obstruction of the safe and convenient use of the highway for all time; and if, by the increase of population in the neighborhood, or by an increasing use of the highway, the crossing which at the outset was adequate, is no longer so, it is the duty of the railroad corporation to make such alteration as will meet the present needs of the public who have occasion to use the highway." The petitioners claim that the Commission should, under authority of section 6 of Part 1, chapter 463, Acts of 1908, enforce this charter obligation whether the town has or has not another remedy either under the general laws (see Statutes 1906, chapter 463, Part 1, section 23 *et sequitur*) or under the machinery provided in said section 11 of the charter of the Boston and Lowell Railroad Corporation.

The respondents contend that this provision of the charter is no longer in force, but has been repealed by implication so that the railroad is, as to this crossing, left with only the rights and obligations growing out of the general laws. In support of this contention the case of *Nichols v. Boston and Maine Railroad*, 174 Mass. 379, decided in 1899, was cited. The case then before the court was a bill in equity brought under the Public Statutes, chapter 112, section 136, to enforce a decree of the county commissioners of Middlesex, ordering the defendant to make certain alterations in the highway. The court ordered the bill dismissed on the ground that the petitioners had acted without jurisdiction and in the course of the opinion discussed briefly the operation of section 11 of chapter 4 of the statutes of 1830. In dealing with the contention made by the railroad that this section was no longer operative, the court said, after citing Public Statutes, chapter 112, section 5, "It seems to us clear that under this section of the statute the Boston and Maine Railroad became subject to all the provisions of the Public Statutes, chapter 112, relating to the maintenance and operation of its leased road and that whatever might be the charter of the Boston and Lowell Railroad Corporation as to such maintenance and operation, this was no longer effective after the two corporations had executed the lease." The Boston and Lowell railroad was leased

to the Boston and Maine under authority of the Statutes of 1869, chapter 459, and Acts of 1883, chapter 67. If this dictum in the opinion of the court is to be taken as a clear expression of opinion that the obligations put upon the Boston and Lowell Railroad Corporation by section 11 of its charter were repealed by the Public Statutes, chapter 112, section 5, then the case of *Nichols v. Boston and Maine Railroad* amounts to a distinct overruling of the Cooke case above cited, for that case was decided in 1882 upon the theory that section 11 was still in force and binding upon the railroad corporation. Moreover, Public Statutes, chapter 112, section 5, is but a re-enactment of the provisions contained in the Statutes of 1874, chapter 372, sections 3 and 4, enacted previous to the decision in the Cooke case.

However, in our opinion, it is not necessary to the determination of the issue here presented to decide whether the decision in *Cooke v. Boston and Lowell Railroad Corporation* has been overruled or whether the Boston and Lowell Railroad and its lessee, the Boston and Maine Railroad, have all the liabilities imposed by section 11 above cited.

Chapter 4 of the laws of 1830 (Boston and Lowell Railroad Corporation charter) in section 11 provided that "if the said railroad shall, in the course thereof, cross any canal, turnpike or other highway, the said railroad shall be so constructed as not to impede or obstruct the safe and convenient use of such canal, turnpike or other highway. And the said corporation shall have the power to raise or lower such turnpike, highway or private way, so that the said railroad, if necessary, may conveniently pass under or over the same. And if said corporation shall raise or lower any such turnpike, highway or private way, pursuant thereto, and shall not so raise or lower the same as to be satisfactory to the proprietors of such turnpike, or to the selectmen of the town in which said highway or private way may be situate, as the case may be, said proprietors or selectmen may require in writing of said corporation such alteration or amendment as they may think necessary. And if the required amendment or alteration be reasonable and proper, and the said corporation shall unnecessarily and unreasonably neglect to make the same, such proprietors or selectmen, as the case may be, may proceed to make such alteration or amendment, and may institute and prosecute, to final judgment and execution, in any court proper to try the same, any action of the case against said corporation, and shall therein recover a reasonable indemnity in damage for all charges, disbursements,

labor and services occasioned by making such alteration or amendments, with costs of suit." This section, in short, provides that the railroad shall be so constructed as not to impede or obstruct the convenient use of canals, turnpikes and highways, and it is granted the power to raise or lower a turnpike, highway or private way so that the railroad may conveniently pass under or over the same, with the proviso, however, that if such a change in the highway is not satisfactory to the selectmen of a town in which such highway is situated the selectmen may require in writing any change that may in their opinion be necessary. Upon failure to make the changes required, the selectmen may make the necessary alterations and may recover damages for the costs of such work. The respondents contend that if this requirement of the charter is now effective there is provided in this section both the authority and the machinery to secure such alterations as are deemed necessary.

Whether this charter obligation is a continuing obligation, as was held in *Cooke v. Boston and Lowell Railroad Corporation*, or whether the charter requirement is superseded by the requirements of the general law imposed upon the lessee by chapter 112, section 5, of the Public Statutes, as seems to be held in *Nichols v. Boston and Maine Railroad*, original and plenary jurisdiction is given to the county commissioners by chapter 463 of the Acts of 1906, Part II, section 117, which provides that the county commissioners shall have original jurisdiction of questions relative to the obstruction of highways or townways which are caused by the construction or operation of railroads. This has been the law since 1849. See also, Laws 1849, chapter 222, section 4; General Statutes, chapter 63, section 62; Statutes of 1874, chapter 372, section 102; Public Statutes, chapter 112, section 135; *Holliston v. New York Central*, 195 Mass. 299. And in *New York Central and Hudson River R.R. Co. v. the County Commissioners of Middlesex*, 220 Mass. 569, at 573, the court declares this jurisdiction of the county commissioners to be exclusive. In that case the railroad, in constructing its line in 1847, narrowed the existing way at the crossing and the county commissioners ordered the highway widened, retaining walls and a sidewalk built and the roadway graded. In affirming the jurisdiction of the county commissioners the court said:—

Such a narrowing of the street, and the maintenance of a fence within its true limits, well may be found to constitute an obstruction of the way, by rendering it inconvenient for travel. And it was exclusively within the province of the commissioners to determine the fact that an ob-



struction existed and that it was due to the encroachments of the petitioner. *Selectmen of Holliston v. New York Central and Hudson River Railroad Co.*, 195 Mass. 299, 305.

In the Public Service Commission Act, and in the several Acts defining the powers and duties of its predecessor, the board of railroad commissioners, there is no grant of jurisdiction, express or implied, to deal with questions of obstructions to highways caused by railroad construction, nor is there statutory authority for the assumption of concurrent jurisdiction.

Apart from the strict interpretation of the statutes, it would be bad governmental policy to attempt the exercise of concurrent jurisdiction even if the color of authority might seem to be given by the legislative enactment above cited, giving general authority to enforce charter obligations. The county commissioners are clothed with ample powers and have an established order of procedure to deal in the first instance with questions of obstructions and alterations of highway crossings incident to railroad construction and operation, and the further authority vested in the courts and special commissions now furnish machinery for the disposition of these matters. An attempted exercise of jurisdiction by another agency of government, not expressly empowered thereto, would only lead to confusion and conflict of authority.

The petitioners in urging the Commission to take jurisdiction in this case relied upon the decision in *Worcester v. Boston and Albany Railroad* (Reports of the Board of Railroad Commissioners, volume 18, page 121, 1886), but in that case the general jurisdiction of the county commissioners was expressly recognized and the peculiar conditions to be dealt with were said to be such that it would not have been "easy to frame a petition under which the county commissioners could pass a decree in this case." The evidence in that proceeding presented no case of structural obstruction to the highway, but rather the nuisance caused by the noise of escaping steam and the dropping of water from engines passing over the bridge upon passers-by below. This nuisance was so manifestly incidental to the actual operation of the trains as to compel relief from the board of railroad commissioners, which was charged with the full and sole jurisdiction to regulate the conduct of train operation. In that case, the board required the building of a floor upon the track surface of the bridge, and this Commission would in all likelihood take jurisdiction to deal with a like situation. In the case before us the petitioners assert that the width of the highway



and the bridge clearance or headroom are no longer adequate to the requirements of travel upon the highway and that there is need of radical structural changes which would necessitate the practical rebuilding of the bridge. It should also be noted in this connection that to make the changes it might be necessary to take land to widen the highway and that there is no method in the statutes for this Commission to provide for such a taking. These conditions are such, in our opinion, as to place the case peculiarly within the range of jurisdiction properly to be exercised by boards of county commissioners.

It is therefore

*Ordered*, That the petition be dismissed.

For the Commission,

ANDREW A. HIGHLANDS,

AUGUST 10, 1916. [P. S. C. 1453]

*Secretary.*

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*Application of the Bay State Street Railway Company for approval of regulations providing for the operation of cars on Slade's Ferry bridge over Taunton Great River at Fall River.*

After investigation and further consideration by the bridge and signal engineering department of the Commission, — it is

*Ordered*, That the Commission hereby approve changes in the regulations providing for the operation of the cars of the Bay State Street Railway Company on Slade's Ferry bridge, over Taunton Great River at Fall River, so that the tracks on said bridge shall be divided into three spaces or blocks, — the westerly, that between the shore and the easterly end of the draw-span; the middle, that between the latter point and the end of the second span easterly thereof; and the easterly, that from the latter point to the Fall River end of the bridge, these spaces or blocks to be indicated by suitable signs attached to the bridge structure, and that regulations shall be issued providing that but one car shall at any one time be within either of the spaces or blocks, and that no car shall enter a space or block until any preceding car has passed out of it.

The existing regulations in the Commission's order of September 22, 1915, so far as they relate to the operation of freight cars, are to remain in effect.

Attest: ANDREW A. HIGHLANDS,

OCTOBER 9, 1916. [P. S. C. 1532]

*Secretary.*

## CAPITAL STOCK AND BONDS.

*Petition of the Bay State Street Railway Company for approval of an issue of first preferred capital stock and of an issue of four per cent mortgage bonds, and revocation of an order of the Commission dated August 25, 1915, authorizing an issue of first preferred capital stock by the petitioner.*

This is a petition of the Bay State Street Railway Company for authority to issue 7,357 additional shares of first preferred capital stock, amounting at par to \$735,700, and first mortgage bonds of the Boston and Northern Street Railway Company, amounting at par to \$400,000, and first mortgage bonds of the Old Colony Street Railway Company, amounting at par to \$300,000; and that the price at which said additional shares of preferred stock shall be offered to stockholders be fixed at \$100 per share.

This proposed issue of preferred stock and mortgage bonds is in lieu of an issue of preferred stock authorized by the Commission on August 25, 1915. The sequence of events leading up to the present petition is as follows: On April 28, 1915, the stockholders of the Bay State Street Railway Company voted

That the first preferred capital stock of this company be hereby increased by the issue of additional first preferred capital stock, in shares of one hundred dollars (\$100) each, to an amount not exceeding at par one million, five hundred thousand dollars (\$1,500,000), or to the amount, not exceeding that, which the Public Service Commission shall decide to be necessary to provide for expenditures properly made or indebtedness properly incurred in the purchase and construction of new and in the reconstruction and betterment of old property, and that the price at which such new stock shall be offered to stockholders be fixed at one hundred and twelve dollars (\$112) per share.

Upon the same day the Commission was asked to approve the stock issue so voted. Accompanying the petition was a detailed schedule of expenditures, to the net amount of \$994,570.11, which the company claimed had been made for additions and improvements to the property and a similar schedule of expend-

itures for reconstruction, totalling \$1,084,856.64, part of which the company claimed represented betterments to the property. To provide for these expenditures, floating indebtedness had been incurred.

These schedules were carefully investigated. The engineer and the chief accountant of the Commission inspected the property referred to, examined all contracts covering large expenditures, and checked unit prices through the vouchers. All items were eliminated which appeared to be replacements and, in the case of the reconstruction expenditures, only items representing additional value over the cost of the old construction were allowed. The original cost of all property sold, destroyed or retired was determined and the amount thereof deducted. As a result of this investigation, the net amount of additions and improvements was finally fixed at \$915,523.55, as compared with the \$994,570.11 claimed by the company, and the amount of betterments in the \$1,084,856.64 reconstruction expenditures was found to be \$520,300.37, making the total amount properly capitalizable \$1,435,823.92. The Commission thereupon, on August 25, 1915, approved an issue of preferred stock amounting at par to \$1,281,900, to be offered to stockholders at \$112 per share. At this price the issue would have realized \$1,435,728.

The law governing the issue of preferred stock by street railway companies requires that new shares shall be offered to the common stockholders at the price fixed and, so far as these do not subscribe, to the preferred stockholders. Any shares remaining unsubscribed may then be sold at public auction at not less than par (see St. 1913, c. 764; St. 1908, c. 636). In the case of the Bay State Street Railway Company, there is but one common stockholder, a voluntary association known as the Massachusetts Electric Companies. Immediately after the approval by the Commission the new preferred shares were duly offered to the Massachusetts Electric Companies at the price fixed, but were not taken, although the opportunity to subscribe was held open for several months. The voluntary association, it appears, was indisposed to make a permanent investment, but was willing to take the stock provided it could be resold at once without loss. To determine this fact, bids were sought, it is claimed, from "every leading, every important banking house and banking firm in the locality, and outside it." Receiving no bids, the Massachusetts Electric Companies declined to subscribe.

At no time were the new shares offered to the preferred stockholders and at no time was an attempt made to sell them at public auction. Finally, upon March 9, 1916, a meeting of all the stockholders, both common and preferred, was called, the situation was laid before them, and they were asked to rescind the vote of April 28, 1915, and to authorize, instead, the issue of preferred stock at par and the issues of mortgage bonds which are now under consideration. This they did.

As matters now stand, therefore, the Commission has already found that expenditures of the Bay State company to the amount of \$1,435,823.92, represented by floating indebtedness may properly be capitalized. The company, however, has surrendered the right to issue the preferred stock authorized last summer and now seeks authority to issue other securities for the same purpose, in part mortgage bonds and in part preferred stock upon altered terms.

At the public hearings the city solicitor of Lynn and others opposed the granting of the new petition. The chief ground of objection was to the issuing of any new stock at the present time, while the petition of the company for a general increase in fares is pending. The claim was made, in effect, that, if the outcome of the fare case is in any respect favorable to the company, its preferred stock should sell at prices considerably above par and that the issuing of such stock at par under present conditions would merely give the Massachusetts Electric Companies, or allied interests, a possible opportunity to reap large profits at the expense of the Bay State company. It was urged that the latter company is now carrying its floating indebtedness at low rates, that money on short time is very cheap, and that under these circumstances the issuing of securities of a permanent nature should be postponed until the uncertainty in regard to its affairs, caused by the pending fare case, is at an end.

On the other hand, the company argued that it is now carrying a substantial load of floating indebtedness, that much additional indebtedness of this nature must soon be incurred in providing for the needs of the property, that the European war and financial conditions in general made the future market for securities exceedingly uncertain, and that the best judgment of its management and of its financial advisers is that the issue of permanent securities ought not to be postponed longer than is absolutely necessary. In behalf of the Massachusetts Electric Companies, furthermore, a statement in writing has been filed



with the Commission, to the effect that any new preferred shares which it may take, if the proposed issue is allowed, will be sold by it upon competitive bids and that the benefit of any profit realized will be given to the Bay State company.

The question thus raised makes it necessary to consider the jurisdiction of the Commission over stock and bond issues. Its principal and basic duty under the law (St. 1906, c. 463, Pt. III, §§ 103 and 107) is to determine, first, whether the purposes are lawful for which securities are desired, and, second, what amount of securities is "reasonably necessary" for purposes found to be lawful. There are, also, secondary duties, such as the duty of determining, in the case of stock issues, whether or not the price fixed by the stockholders is "so low as to be inconsistent with the public interest" (see St. 1908, c. 636, § 3). But we are unable to discover that the Commission has been given by the statutes any jurisdiction whatever over the time when securities shall be issued. It has no authority, in other words, to refuse to approve an issue on the ground that it could be made to better advantage at another time. This is a matter, it seems, left by the statutes to the discretion of the companies and the Commission has no power to interfere. The responsibility is upon the companies, and in any proceedings in which the character of the management of a particular company is in issue it must sustain the burden of this responsibility.

But this is not the only question which confronts the Commission in the present case. When once it has authorized an issue of securities, can it properly (provided, of course, the authority has not been exercised) rescind its order and authorize another and a different issue of securities for the same purpose? There is nothing in the statutes which forbids such procedure and it has, indeed, been common in the past. If the proposed substitution in no way violates the principles of the statutes governing the issue of securities, it would seem that it must be permitted. In the present case, as already indicated, the company proposes to make two changes. It wishes, first, to issue bonds, in part, in place of preferred stock; it wishes, second, to offer the remaining preferred stock to its stockholders at par instead of at \$112 per share.

So far as the substitution of bonds in place of stock is concerned, no principle of the law is violated. This is a matter which the statutes leave very largely to the discretion of the companies. So long as a street railway company keeps within

the statutory limitation (see St. 1906, c. 463, Pt. III, § 108 as amended by St. 1908, c. 620) and does not attempt to issue bonds or other long-term evidences of indebtedness to an amount in excess of the par value of its outstanding capital stock plus any premiums paid in thereon, nor to issue some form of securities unauthorized by the statutes, the Commission has no jurisdiction over the matter. In other words, in the case of a petition for approval of an issue of securities, the Commission cannot require the company to issue stock instead of bonds, or vice versa, or to issue a particular class of stock or bonds. That being the case, if a company, after an issue of stock has been authorized, changes its mind and wishes to issue some lawful form of bonds instead, subject to the statutory limitation, the Commission has no ground for interference, since the change relates solely to a matter left by the statutes to the discretion of the management.

The proposed change in the price at which the preferred shares are to be offered to the stockholders, however, raises a different question. This is a matter over which the statutes clearly give the Commission jurisdiction. Section 3 of chapter 636 of the Acts of 1908 definitely provides that the Commission "shall refuse to approve any particular issue of stock" if, in its opinion, "the price fixed by the stockholders is so low as to be inconsistent with the public interest." Before the Commission can properly authorize the proposed new issue of preferred stock, therefore, it must find that this price, now fixed at par, is not inconsistent with the public interest, taking into consideration all pertinent circumstances.

The phrase, "so low as to be inconsistent with the public interest," was considered by the Supreme Court of the Commonwealth in the case of *Bulkeley v. N. Y., N. H. and H. R.R.* (216 Mass. 432), and the following quotations from the opinion in that case are relevant: —

In effect this change transferred the initial duty of fixing the price at which new stock should be issued from the railroad commissioners to the stockholders, but left with the commissioners the duty of protecting the public interests by withholding their approval of a price which would not yield an adequate return to the corporation for the stock issued or which in other respects was incompatible with a sound public policy (p. 436).

It is difficult to define the phrase last quoted. It is not now necessary to undertake to give a comprehensive statement of its signification, nor to determine the extent of the change wrought in the principles which

should govern the determination of the commission in giving its approval under the new statute compared with those under the old. At least it must be taken, as was said by the railroad commissioners in their Fortieth Annual Report, pp. 153-155, "to mean in any specific case an issue price materially lower than a price which would assure a ready market for the issue" (p. 438).

In the light of these declarations, the duty of the Commission, as nearly as we can determine it, is to prevent any issue of stock from being offered to the stockholders at a price materially lower than the stock would command, at the time of such offer, if it were sold freely in the open market. Judged by this standard, if the preferred stock is to be offered, as the company intends, at the present time and under prevailing conditions, there is no evidence upon which the Commission can consistently disapprove the price now fixed by the stockholders. We have no reason to believe that the proposed block of preferred stock could now be sold in the open market at a price materially in excess of par.

If our view of the law is correct, therefore, the Commission is in duty bound to rescind its former order and to approve the proposed new issue of preferred stock at par, unless it be that a further circumstance, called to the attention of the Commission at the public hearings, and not heretofore considered, furnishes sufficient reason for different action. It appears that in section 6 of the agreement for the purchase and sale of the property and franchise of the Old Colony Street Railway Company to the Boston and Northern Street Railway Company, authorized by St. 1911, chapter 323, and approved by the Board of Railroad Commissioners on June 28, 1911, the following clause appears: —

Each such share of the First Preferred Stock shall be subject to call by the Boston and Northern Street Railway Company (now the Bay State Street Railway Company) at any time, on payment or tender to the holder thereof of one hundred twenty dollars (\$120) and of all accrued and unpaid dividends thereon, in such manner, upon such terms, as to length of notice and otherwise, as the board of directors for the time being of the Boston and Northern Street Railway Company may from time to time by vote determine.

It was argued that, if the issue of preferred stock at par is authorized, this clause in the agreement may at some future time make it possible for the directors of the Bay State com-

pany to tender a wholly undeserved and unreasonable profit to the holders of this stock. The inference, presumably, is that the issue of additional preferred stock should not be permitted at less than \$120 per share. The Commission is unable to accept this inference. Even if it be assumed that the directors might take such action at the expense of their company, they would take it at their peril and it would be the duty of the Commission, in any proceedings involving rates or service, to prevent any injurious results to the public from such action.

So much for the preferred stock. In the case of the bonds, the company proposes to issue bonds of two different classes, viz., mortgage bonds of the Boston and Northern Street Railway Company and mortgage bonds of the Old Colony Street Railway Company. It was argued that the latter securities cannot be issued by the Bay State company for the reason that the Old Colony Street Railway Company has ceased to exist. It appears that under authority of chapter 255 of the Acts of 1904 and with the approval of the board of railroad commissioners, the Old Colony Street Railway Company, on July 1, 1904, executed a mortgage upon its property and that the issue of 4 per cent bonds secured thereby and having a total par value of \$10,000,000 was authorized by its stockholders. Of this total, bonds having a par value of \$1,389,000 remain unissued in the hands of trustees. On the same date the Boston and Northern Street Railway Company, under authority of chapter 256 of the Acts of 1904, and with the approval of the board of railroad commissioners, executed a similar mortgage, and the issue of similar bonds to the par value of \$15,000,000 was voted by its stockholders. Of this latter total, \$2,267,000 remain unissued in the hands of trustees. By chapter 323 of the Acts of 1911 the Boston and Northern Street Railway Company (whose name was later changed to the Bay State Street Railway Company) was authorized to purchase the franchise and property of the Old Colony Street Railway Company, a purchase which was consummated with the approval of the board of railroad commissioners upon June 28, 1911. Section 4 of this act contained the following provision:—

The Boston and Northern Street Railway Company, after the completion of the purchase authorized by section one of this act, may, as successor to the Old Colony Street Railway Company, issue from time to time the bonds, unissued at the date of such purchase, secured by the mortgage of July first, nineteen hundred and four, from said last named



company to the Old Colony Trust Company, in the same manner and for the same purposes as such bonds under the terms of said mortgage and of the laws applicable thereto could have been issued by the Old Colony Street Railway Company. . . .

Clearly this act contemplated and authorized the issue of the Old Colony Street Railway bonds now in question. The authority thereby given is not one which this Commission can presume to challenge.

In determining further questions that have been raised with reference to the issue of these bonds, certain facts in regard to the company should be reviewed. On March 15, 1916, the capitalization of the company was as follows: —

Common stock, . . . . .	\$20,517,200
Preferred stock, . . . . .	2,748,600
Stock premiums, . . . . .	357,480
	<hr/>
	\$23,623,280
Funded debt, . . . . .	\$23,466,000

Nearly all of the funded debt is made up either of mortgage bonds similar to those which the company now wishes to issue, or of bonds which will be refunded at maturity by such mortgage bonds. The company also has \$2,675,000 of short-time notes outstanding. Of these, \$1,200,000 bear interest at the rate of 5 per cent and are held by the Massachusetts Electric Companies. The remainder bear interest at rates varying from  $4\frac{1}{2}$  per cent to  $3\frac{1}{2}$  per cent and are held by certain banks. On April 28, 1915, when the issue of preferred stock at \$112 per share was voted by the stockholders, the situation was substantially the same.

It will be seen that the bond-issuing capacity of the company is practically exhausted. Its funded debt is very nearly equal to the par value of the outstanding stock plus premiums, and it is impracticable, therefore, as the law now stands, to issue further bonds (except under the special provisions of St. 1914, c. 671) unless additional stock is also issued. It will also be noted that the amount of preferred stock is comparatively small. It is all of the same class and is preferred both as to dividends and in liquidation. Dividends are cumulative and at the rate of 6 per cent. Such stock, so limited in amount and non-taxable, should normally command prices above par provided there is

any reasonable prospect of dividends in the future upon the common stock. In 1908 it was issued to stockholders at \$110; in 1910, at \$115; and in 1913, at \$115.

A further fact deserves mention. It has been urged that the Massachusetts Electric Companies had no fund which it could have applied (or could now apply) to the purchase of preferred stock, so that it was impracticable for it to take such stock unless arrangements could be made for immediate resale to outside investors. But the Massachusetts Electric Companies has for some time held the short-time notes of the Bay State company for about \$1,200,000. These short-time notes clearly constitute a fund in the possession of the voluntary association available for the purchase of preferred stock from the company which issued them.

It is admitted that, if the company issues additional 4 per cent mortgage bonds, under prevailing conditions, they can only be sold at a heavy discount and that the company, in addition to paying the interest, must amortize this discount by yearly charges distributed over the life of the bonds, which in this case is thirty-eight years. If the bonds should sell at 75, and there is no reasonable certainty that they will bring that figure, the average total annual charge upon the company would be about  $5\frac{5}{8}$  per cent and the charge in early years would be greater. It is quite possible that the average annual charge might be in the vicinity of 6 per cent. It must be evident that the company, if it funds a portion of its floating debt in this manner at the present time, will fasten a heavy fixed charge upon itself for a long period of years; that this action may tend to depreciate the value of the entire outstanding issue of similar bonds; and that it will practically exhaust its bond-issuing capacity to meet future needs. It is also true that, if the Massachusetts Electric Companies should, instead, take preferred stock in exchange for the notes which it holds, fixed charges would be substantially reduced and the bond-issuing capacity of the company be increased by the amount of the preferred stock so issued.

The Massachusetts Electric Companies is not in the position of the ordinary note holder, since it also holds the entire common stock of the Bay State company. It has been suggested that if the estimate which the market now seems to be placing upon the Bay State securities is justified, a reduction in fixed charges and an increase in bond-issuing capacity would not only be in the interest of the company itself but equally in the interest of

its common stockholder and that, instead of fastening a heavy fixed charge upon the Bay State company for a long period of years, a sound financial policy would lead the Massachusetts Electric Companies, under prevailing conditions, to accept an issue of preferred stock in exchange for the notes which it holds, and that, indeed, this course ought to have been pursued last summer.

The management of the Bay State company on the other hand is strongly of the opinion that the indebtedness which it now seeks to capitalize can be funded on the most advantageous terms by the method it has adopted, on the ground that an issue of both stock and bonds will open up a broader field of investment than would be possible if the issue were confined to a single class of securities. The company also states that it is more important to obtain new money to meet its outside short-time obligations than to retire its indebtedness to the Massachusetts Electric Companies. But whatever may be the merits of this question, and it is a question upon which reasonable men may differ, it is clear that the matter is one which is left by the statutes to the discretion of the management. As already stated, the Commission cannot, if it desired to do so, require the company to issue stock instead of bonds, or vice versa, or to issue a particular class of stock or bonds.

Upon the evidence before it, therefore, and after a careful consideration of the authority vested in it by the statutes, the Commission approves the two issues of mortgage bonds in accordance with the company's petition.

### ORDER.

*Order on petition of the Bay State Street Railway Company for approval of an issue of first preferred capital stock and of an issue of four per cent mortgage bonds, and revocation of an order of the Commission dated August 25, 1915, authorizing an issue of first preferred capital stock by the petitioner.*

It appearing, after notice and hearing and further consideration, that the proposed issue of preferred stock is for a lawful purpose and that the limitations of the voting power of said preferred stock are consistent with the adequate protection of the public interests, — it is

*Ordered*, That the approval of the Commission be hereby given to the issue by the Bay State Street Railway Company, at the price of one hundred dollars (\$100) per share, as fixed by its

stockholders, of not exceeding seven thousand three hundred fifty-seven (7,357) additional shares of six per cent (6%) cumulative first preferred capital stock, amounting at par value to seven hundred thirty-five thousand seven hundred dollars (\$735,700) having the preferences, voting powers and restrictions and qualifications thereof which have been fixed by vote of two-thirds in interest of its common stockholders at a meeting duly called for the purpose as set out in copies of votes referred to in and annexed to the petition of the company dated March 9, 1916, as an issue of stock of an amount reasonably necessary for the purpose of paying certain floating indebtedness properly incurred in the construction and equipment of the railway and in the purchase of property necessary for its operation, as shown in schedules on file with the petition.

Any excess in the proceeds of these shares over the amount to be applied as above stated shall be held for such application to the cost of permanent additions to and improvements in the property of the company as the Commission shall hereafter approve.

It also appearing, after notice and hearing and further investigation, that the proposed issues of bonds are for lawful purposes, — it is

*Ordered*, That the approval of the Commission, under the authority of chapter 323, Acts of 1911, be hereby given to the issue by the Bay State Street Railway Company (formerly the Boston and Northern Street Railway Company), subsequent to and conditional upon the issue of the preferred stock hereinbefore authorized, of coupon or registered bonds of the Boston and Northern Street Railway Company secured by the mortgage executed by said company to the Adams Trust Company (now the American Trust Company) under date of July 1, 1904, to an amount not exceeding at par value four hundred thousand dollars (\$400,000), payable in fifty years from the date thereof and bearing interest at the rate of four per cent (4%) per annum, as an issue of bonds of an amount reasonably necessary for the purpose of paying certain floating indebtedness properly incurred in the construction and equipment of the railway and in the purchase of property necessary for its operation, all as described in the schedule on file with the petition.

It is

*Further ordered*, That the approval of the Commission, under the authority of chapter 323, Acts of 1911, be hereby given to the issue by the Bay State Street Railway Company (successor



to the Old Colony Street Railway Company), subsequent to and conditional upon the issue of the preferred stock hereinbefore authorized, of coupon or registered bonds of the Old Colony Street Railway Company secured by the mortgage executed by said company to the Old Colony Trust Company under date of July 1, 1904, to an amount not exceeding at par value three hundred thousand dollars (\$300,000), payable in fifty years from the date thereof and bearing interest at the rate of four per cent (4%) per annum, as an issue of bonds of an amount reasonably necessary for the purpose of paying certain floating indebtedness properly incurred in the construction and equipment of the railway and in the purchase of property necessary for its operation, all as described in the schedule on file with the petition.

It is

*Further ordered*, That the order of the Commission dated August 25, 1915 (P. S. C. 918), approving the issue of twelve thousand eight hundred nineteen (12,819) additional shares of six per cent (6%) cumulative first preferred capital stock, amounting at par value to one million, two hundred eighty-one thousand nine hundred dollars (\$1,281,900), be hereby rescinded, no stock having been issued thereunder for the purposes specified therein.

Attest:

ALLAN BROOKS,

APRIL 15, 1916.

[P. S. C. 1280]

*Assistant Secretary.*

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*Petition of the Bay State Street Railway Company for approval of the issue of serial coupon notes to the amount of \$2,500,000.*

This is a petition of the Bay State Street Railway Company that it be authorized to issue coupon notes of the face value of \$2,500,000 for the purpose of reconstructing track and overhead equipment and of replacing rolling stock and other items of railway property as set forth in a schedule accompanying the petition, said coupon notes to bear interest at the rate of six per cent per annum and to mature and be paid in series within a period of seven years.

This petition is the first which has been brought under the provisions of chapter 671 of the Acts of 1914, entitled "An Act Relative to Funding the Cost of Replacement or Reconstruction of Street Railway Property." The general law (St. 1906, c. 463, Pt. III, § 108) prohibits street railway companies from issuing bonds, coupon notes or other evidences of indebtedness payable at periods of more than twelve months after the date thereof to

an amount which, including the amount of all such securities previously issued and outstanding, exceeds in the whole the amount of its capital stock plus premiums paid in thereon. The 1914 statute amends this law by providing that the limitation shall not apply to

bonds, coupon notes or other evidences of indebtedness payable at periods of more than twelve months after the date thereof, in addition to, and not exceeding twenty per cent of, the amount so computed, which shall be authorized as consistent with the public interest by the public service commission, and which shall be subject to such requirement as to a sinking fund or other method of retiring said evidences of indebtedness within a period not exceeding ten years, as the commission may prescribe, to provide means for, or to fund, the actual cost of replacement or reconstruction of any existing property; . . .

This statute is unique in the history of the regulation of public utility capitalization in this commonwealth, in that it permits evidences of indebtedness running for periods of more than twelve months to be issued, not for the purpose of meeting the cost of additions or improvements to the property, but for the purpose of paying for renewals which are ordinarily and properly regarded as a part of the expense of operation. Its general purpose, apparently, is to make it possible for street railway companies faced with the immediate need of unusually large expenditures for replacements or reconstruction, and having no adequate depreciation fund, to spread the burden over a series of not exceeding ten years without the use of short-time notes, instead of charging it at once to operating expense. The privilege in this way to fund such expenditures, however, may be exercised, under the statute, only at the discretion of the Commission when found to be "consistent with the public interest."

In the present case there is no question but that the Bay State Street Railway Company has failed to keep its property in good operating condition, that there is urgent need of extraordinary expenditures for replacement and reconstruction of its property, and that it has no adequate depreciation fund with which to meet this need. In the recent "Bay State fare case," decided on August 31, 1916, the Commission found the property to be about  $7\frac{1}{2}$  per cent below the standard of first-class operating condition and that an expenditure of approximately \$2,900,000 would be required to restore it to such condition. In the judgment of the Commission it is of the utmost importance both to the company and to the public that the work of rehabilitation

should proceed with expedition and that it should be facilitated and encouraged in every legitimate way.

The petition as originally filed by the company sought authority for the issue of coupon notes of the face value of \$2,750,000, but by amendment this amount was subsequently changed to \$2,500,000. The schedule accompanying the petition, as revised, shows expenditures made or in contemplation for renewals or "non-betterments," to use the word employed by the company, amounting to \$2,643,043, which have been or are to be incurred in the replacement and reconstruction of track and roadbed, power equipment and cars. This schedule has been checked by the experts of the Commission and they report that the estimates of cost appear to be reasonable and that of the total amount at least \$2,500,000 relates to work which has been done or for which there is immediate need. Indeed, it appears that much work for which there is such need is not included in the schedule.

Under the circumstances and with due regard to the apparent intent of the 1914 statute, the Commission believes that it is consistent with the public interest that the company should be allowed to issue coupon notes of the character and face value desired to cover the cost of that portion of the non-betterment work described in the schedule for which there is immediate need and which ought to be carried to completion as soon as possible. It is impossible, however, at the present time to determine with accuracy the precise reasonable cost of the work in question and it is also important that after the notes are sold the proceeds should be used for this work without undue delay. For this reason it is desirable that the Commission should retain close supervision over the application of the funds and that the company should be required to submit periodical and frequent reports of progress for its inspection.

It appearing, after notice and hearing and further investigation, that the issue by the petitioner of serial coupon notes of the face value of \$2,500,000 is reasonably necessary to provide means for or to fund the actual cost of the replacement or reconstruction, as soon as may be, of existing property and is consistent with the public interest, and that the amount of said notes does not exceed 20 per cent of the amount of capital stock of the petitioner actually paid in, computed as provided in chapter 620 of the Acts of the year 1908, it is

*Ordered,* That the approval of the Commission be hereby given, under the provisions of section 108 of part III of chapter

463 of the Acts of 1906, as amended by chapter 671 of the Acts of 1914, to the issue by the Bay State Street Railway Company of coupon notes to an amount not exceeding at par value \$2,500,000, bearing interest at a rate not exceeding six per cent and maturing and payable as follows, viz.,

December 1, 1917,	. . . . .	\$357,000
December 1, 1918,	. . . . .	357,000
December 1, 1919,	. . . . .	357,000
December 1, 1920,	. . . . .	357,000
December 1, 1921,	. . . . .	357,000
December 1, 1922,	. . . . .	357,000
December 1, 1923,	. . . . .	358,000

as an issue of notes reasonably necessary and of the amount required for the purpose of providing means for or funding the actual cost of reconstructing the track and overhead equipment and of replacing rolling stock and other items of property, substantially as set forth in the schedule accompanying the petition.

It is

*Further ordered,* That all contracts covering the purchase of material or machinery to be used in connection with any of the construction items heretofore mentioned, or the installation thereof, shall be filed with the accountant of the Commission as soon as executed; also that the company shall keep true and accurate accounts showing the receipt and application by it of the proceeds of the sale or disposition of all notes authorized to be issued hereby and report in writing to the Commission at the end of each period of three months succeeding the issue of said notes, unless otherwise ordered, its receipts and disbursements during such period of the proceeds of said notes, said report to be made as directed by the accountant of the Commission.

Any excess in the proceeds of said notes over the amount actually expended for the purposes herein authorized shall be held for such application to the cost of other work of similar character as the Commission shall hereafter approve.

Attest:                      ANDREW A. HIGHLANDS,  
DECEMBER 2, 1916.      [P. S. C. 1381]

*Secretary.*



*Petition of the Boston and Lowell Railroad Corporation for approval of an issue of bonds.*

It appearing, after notice and hearing and further investigation, that the proposed issue of bonds is for lawful purposes and is consistent with the public interest, — it is

*Ordered*, That the approval of the Commission be hereby given to the issue by the Boston and Lowell Railroad Corporation of coupon or registered bonds to an amount not exceeding at par value one million two hundred fifty thousand dollars (\$1,250,000), dated March 1, 1916, payable twenty years from date thereof and bearing interest at a rate not exceeding five per cent (5%) per annum, as an issue of bonds reasonably necessary and of the amount required for the following purposes:

1. The proceeds of bonds amounting at par value to seven hundred fifty thousand dollars (\$750,000) shall be applied exclusively to the payment and refunding of outstanding bonds of the petitioner, amounting to seven hundred fifty thousand dollars (\$750,000), which mature July 1, 1916.

2. The proceeds of bonds amounting at par value to five hundred thousand dollars (\$500,000) shall be applied exclusively to the payment of notes of the petitioner to the amount of five hundred thousand dollars (\$500,000), due March 1, 1916, issued in payment of bonds of said petitioner to said amount of five hundred thousand dollars (\$500,000), which became due March 1, 1915.

Any excess in the proceeds of these bonds which may be realized from premiums shall be held for such application to cost of permanent additions to and improvements in the property of the petitioner as the Commission shall hereafter approve.

Attest:                      ANDREW A. HIGHLANDS,

JANUARY 19, 1916.      [P. S. C. 1233]

*Secretary.*

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*Petition of the Boston and Lowell Railroad Corporation for approval of issue of bonds.*

This is a petition of the Boston and Lowell Railroad Corporation for approval of an issue of coupon or registered bonds to the amount not exceeding one hundred thirty-five thousand dollars (\$135,000) at par value, to be dated March 1, 1916, and to be payable twenty (20) years from the date thereof and to

bear interest at the rate of five (5) per cent per annum, the proceeds to be used in payment of notes of the petitioner now outstanding to the amount of one hundred thirty-five thousand dollars (\$135,000) bearing interest at five and one-half ( $5\frac{1}{2}$ ) per cent per annum dated June 1, 1915, and becoming due June 1, 1916.

The schedule presented by the company shows expenditures made in 1912 to the amount of sixty-four thousand ninety-one dollars and ninety-seven cents (\$64,091.97); in 1913, fifty-nine thousand two hundred seventy-three dollars and seventy-two cents (\$59,273.72); in 1914, thirty-two thousand nine hundred twenty-two dollars and sixty cents (\$32,922.60); total, one hundred fifty-six thousand two hundred eighty-eight dollars and twenty-nine cents (\$156,288.29).

It appearing, after notice and hearing and full investigation by the engineering and accounting departments of the Commission, that the schedules show additions and betterments in the property of the petitioner to the amount of one hundred forty-five thousand eight hundred forty dollars and eighty cents (\$145,840.80), for which no capital stock or bonds have been issued, and that the proposed issue of bonds is for a lawful purpose and of an amount reasonably necessary for such purpose, — it is

*Ordered*, That the approval of the Commission be hereby given to the issue by the Boston and Lowell Railroad Corporation of coupon or registered bonds to the amount not exceeding at par value one hundred thirty-five thousand dollars (\$135,000), payable twenty (20) years from the date thereof and bearing interest at the rate of five (5) per cent per annum as an issue of bonds reasonably necessary and of the amount required for the purpose set forth in the corporation's petition filed January 27, 1916, of paying certain floating indebtedness properly incurred for permanent additions to and improvements upon the railroad property of the petitioner made by the Boston and Maine Railroad in accordance with the provisions of the lease of its railroad and described in the schedule on file with the petition.

Any excess in the proceeds of these bonds which may be realized from premiums shall be held for such application to cost of permanent additions to and improvements upon the property of the petitioner as the Commission shall hereafter approve.

Attest:                   ANDREW A. HIGHLANDS,

MAY 18, 1916.       [P. S. C. 1252]

*Secretary.*

*Petitions of the Boston and Worcester Street Railway Company for approval of an issue of preferred stock and for approval of an issue of bonds.*

These are petitions of the Boston and Worcester Street Railway Company for approval of an issue of not exceeding six hundred additional shares of preferred capital stock, amounting at par to \$60,000, to be offered proportionately to the stockholders for subscription at a price, not less than the market value thereof at the time of increase, to be determined by this Commission, and for approval of an issue of first mortgage bonds, bearing interest at the rate of four and one-half per cent per annum, to an amount not exceeding at par value \$60,000, the proceeds of said stock and bonds to be used for the payment of floating indebtedness properly incurred for lawful purposes and also for the purpose of paying for certain equipment about to be ordered.

The schedule submitted by the company shows expenditures for additions or improvements made since the date of the last issue of stock or bonds, or to be made, amounting in all to \$246,419.39. A personal inspection of the property referred to in this schedule was made by the chief accountant and assistant engineer of the Commission and the various expenditures were carefully investigated. All items which appeared to be replacements were eliminated, deductions were made for property sold or destroyed, and \$10,000 was deducted as representing the amount of bonds previously authorized to provide funds for the purchase of certain equipment. As a result of this investigation, the report of the chief accountant and assistant engineer of the Commission, dated August 16, 1916, showed the amount which might properly be capitalized to be \$120,884.40, and that the present market value of the preferred stock of the company is approximately one hundred dollars per share.

It appearing, after notice and hearing and full investigation by the engineering and accounting departments of the Commission, that additions and betterments have been made or are to be made to the property of the company to the amount of \$120,884.40, for which no capital stock or bonds have been issued, that the proposed issues of preferred stock and bonds are for lawful purposes and of amounts reasonably necessary for such purposes, that the limitations of the voting power of said preferred stock are consistent with the adequate protection

of the public interests and that the present market value of said stock is approximately one hundred dollars per share, — it is

*Ordered*, That the approval of the Commission be hereby given to the issue by the Boston and Worcester Street Railway Company, at the price of one hundred dollars (\$100) per share, of not exceeding six hundred (600) additional shares of six per cent (6%) cumulative preferred capital stock, amounting at par value to sixty thousand dollars (\$60,000), having the preferences, voting powers and restrictions and qualifications thereof which have been authorized by the stockholders and directors of the company and approved by order adopted by the board of railroad commissioners under date of February 21, 1911, as set out in copies of votes described in and annexed to the petition of the company dated April 20, 1916, as an issue of stock reasonably necessary and of the amount required for the purpose of paying floating indebtedness properly incurred for additions and betterments made in the property of the company, and for the payment of equipment to be purchased, as described in the schedule on file with the petition.

Any excess in the proceeds of these shares over the amount to be applied as above stated shall be held for such application to the cost of permanent additions to and improvements in the property of the company as the Commission shall hereafter approve.

And it is further

*Ordered*, That the approval of the Commission be hereby given to the issue by the Boston and Worcester Street Railway Company of coupon or registered bonds to an amount not exceeding at par value sixty thousand dollars (\$60,000), payable twenty years from the date thereof and bearing interest at the rate of four and one-half per cent ( $4\frac{1}{2}\%$ ) per annum, as an issue of bonds reasonably necessary and of the amount required for the purpose of paying floating indebtedness properly incurred for additions and betterments in the property of the company and for the payment of equipment to be purchased, as described in the schedule on file with the petition.

Any excess in the proceeds of these bonds which may be realized from premiums shall be held for such application to cost of permanent additions to and improvements in the property of the petitioner as the Commission shall hereafter approve.

Attest:                      ANDREW A. HIGHLANDS,  
SEPTEMBER 27, 1916.      [P. S. C. 1329]                      Secretary.



*Petition of Lothrop Withington and associates, purchasers at receiver's sale of the property of the Norton and Taunton Street Railway Company, that the Commission determine the fair cost of replacing said property, which is to be acquired by a new corporation, and approve the amount of capital stock to be fixed in the agreement of association for the formation of the Norton, Taunton and Attleborough Street Railway Company.*

The petitioners, on February 7, 1916, purchased at a receiver's sale the railway and property of the Norton and Taunton Street Railway Company, including its locations and franchises, and have organized a new company under the provisions of section 145 of Part III of chapter 463 of the Acts of 1906, to be known as the Norton, Taunton and Attleborough Street Railway Company, for the purpose of holding, owning and operating the railway and property so purchased. Under this statute they must, before the new company can be incorporated, file in the office of the Secretary of the Commonwealth a written agreement of association stating, among other things: —

The total amount of the capital stock of the company, which shall be fixed at an amount approved by the board of railroad commissioners, but which shall not exceed the fair cost, as determined by said board, of replacing the railway and property so acquired, less the amount of any outstanding mortgages to which said railway and property may be subject in the hands of the new company.

For the purpose of complying with this provision of the statute and of fixing the amount of capital in the agreement of association which has been filed, the petitioners now ask this Commission to determine the fair cost of replacing the railway and property acquired.

Some question has been raised as to the meaning of the statutory language. In the opinion of the Commission the words "fair cost of replacing" are equivalent to "cost of reproduction new less accrued depreciation" and this is, it seems, the interpretation which has always been given to the words in practice in the past. Manifestly it is the intent of the statute that a company organized to take over street railway property purchased at a receiver's sale shall start with a clean slate, not handicapped by the past and in at least as favorable a position as though the enterprise were entirely a new one. In order that this may be the case, the capitalization of such a company must

be based upon the depreciated value of the property acquired. Street railway property purchased at a receiver's sale is, of course, not new nor as good as new. Because of age and use it cannot last as long as new property and less time will be available in which to accumulate funds for its ultimate replacement. For this reason allowance must be made for depreciation in the case, not only of the materials, but also of the labor entering into construction, for both of these elements of cost must be repeated in connection with replacements.

In preparing their estimate of reproduction cost the engineers of the Commission used, in accordance with the generally accepted practice, the average unit prices prevailing during the past five years, so that the valuation might not be affected by temporary or abnormal conditions. As the railway is small and its traffic very light, in estimating depreciation longer lives were assumed in the case of certain of the property units than would ordinarily be assumed. No allowance was made for depreciation in the case of a large portion of the overhead charges, on the ground that most of these charges would not arise in connection with replacements. Accepting the estimate so made by the engineers, the Commission finds the fair cost of replacing the railway and property acquired at the receiver's sale to be \$213,864.

Under the statute the original capital stock of the new company, which must be stated in the agreement of association, may be fixed at any amount not in excess of \$213,864, since the property was sold at the receiver's sale free and clear of any mortgage. The organizers of the new company, however, desire to execute a new mortgage and to issue mortgage bonds as a part of the initial capitalization. They have therefore asked the Commission to approve capital stock of \$120,000 par value as the amount to be stated in the agreement of association. In the judgment of the Commission no objection can be made to this arrangement. Before either this amount of capital stock or the proposed mortgage bonds may be issued, however, it will be necessary for the new company, when it has obtained its certificate of incorporation, to secure the customary approval of the Commission, under the provisions of the general law.

#### *Order.*

After notice and hearing and further investigation, the Commission having determined that the fair cost of replacing the railway and property of the Norton and Taunton Street Railway

Company, acquired by the petitioners at a receiver's sale and which is to be acquired by a new corporation to be known as the Norton, Taunton and Attleborough Street Railway Company, which is to be organized as provided in section 145 of Part III of chapter 463 of the Acts of 1906 or any acts amendatory thereof, is two hundred thirteen thousand eight hundred sixty-four dollars (\$213,864), and the organizers of said proposed new company having signified their desire to fix the amount of the capital stock in the agreement of association at one hundred twenty thousand dollars (\$120,000), it is —

*Ordered*, That the sum of one hundred twenty thousand dollars (\$120,000) be hereby approved as the total amount of capital stock of the proposed new company.

By the Commission,

ANDREW A. HIGHLANDS,

DECEMBER 21, 1916.

[P. S. C. 1269]

*Secretary.*

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*Petition of Plymouth and Sandwich Street Railway Company relative to the requirement of chapter 95 of the Acts of 1911, authorizing the town of Plymouth to subscribe for, purchase and hold shares of the capital stock, bonds and notes of said company.*

Chapter 95 of the Acts of 1911 contains the following provision: —

SECTION 1. The town of Plymouth is hereby authorized to subscribe for, purchase, and hold shares of the capital stock, bonds and notes of the Plymouth and Sandwich Street Railway Company, or of any railway or railroad or electric railroad company authorized to construct a railway or railroad between Plymouth and Sandwich, to an amount not exceeding in the aggregate fifty thousand dollars; *provided*, that such subscription or purchase is authorized by a two thirds vote of the voters present and voting thereon at any legal town meeting called for the purpose within five years after the passage of this act; and *provided, further*, that no such subscription or purchase shall be made until the board of railroad commissioners shall have been satisfied that reasonably sufficient financial arrangements have been made to permit the completion of said railway, railroad, or electric railroad from Plymouth to Sandwich.

This statute was approved by the governor on March 2, 1911. On March 25, 1911, the town of Plymouth, in town meeting assembled, by a two-thirds vote authorized the selectmen "in

the name and on behalf of the town to subscribe for or purchase five hundred shares of the capital stock of the Plymouth and Sandwich Street Railway Company at a price not exceeding the par value thereof," with the condition that "such subscription or purchase shall not be made by the selectmen until they are satisfied that the balance of the amount necessary for the construction and equipment of said road is fully provided for." Upon the same day the selectmen were also authorized, "for the purpose of raising money to be expended for shares of the capital stock of the Plymouth and Sandwich Street Railway Company," to issue and sell "bonds of the town to an amount not exceeding fifty thousand dollars." At a subsequent town meeting, held on March 25, 1916, an attempt was made to rescind this vote, but action under this article in the warrant was "indefinitely postponed."

The statute, however, provides (see above) that the town of Plymouth shall not subscribe for or purchase the stock in question "until the board of railroad commissioners shall have been satisfied that reasonably sufficient financial arrangements have been made to permit the completion of said railway, railroad, or electric railroad from Plymouth to Sandwich." In accordance with this provision the Plymouth and Sandwich Street Railway Company now petitions this Commission, as successor to the Board of Railroad Commissioners, to "enter such order as may be necessary in the premises to authorize said subscription by the town of Plymouth."

It appears that a portion of the line between Plymouth and Sandwich has already been built and is in operation, this portion extending a distance of 6.15 miles from the northern terminus in Plymouth to Fresh Pond. A further portion, 1.85 miles long, between Sagamore Beach and the Cape Cod Canal, has been built but has not as yet been operated. There remains to be completed 9.9 miles of line between Fresh Pond and Sagamore Beach and between the Cape Cod Canal and the Bourne-Sandwich line.

At the public hearing on August 3, 1916, a member of the firm of H. P. Converse and Company, general contractors of Malden, testified that his firm has a contract with the street railway company to complete the line between Plymouth and Sandwich, that the greater part of the grading had been done, that most of the necessary material had been purchased, and that substantial progress had been made in the work of track



laying and overhead construction. Later the street railway company filed with the Commission the following statement of work done up to November 1, 1916: —

*Grading.*

Grading substantially completed.

*Materials.*

Materials all on the ground with the exception of about 300 poles.

*Track Construction.*

Total distance (main line) from Southern terminus of Company's old line at Fresh Pond to Sandwich, . . . . .	Miles. 11.75
Track construction completed, . . . . .	7.53
<hr/>	
Balance uncompleted, . . . . .	4.22
Of which balance rails and ties have been distributed along, . . . . .	3.42
And rails and ties have been placed ready for spiking along, . . . . .	2.01

*Overhead Construction.*

Pole construction completed, . . . . .	2.10
Trolley construction completed, . . . . .	1.85

This statement was checked on the ground by the engineering department of the Commission and found to be "substantially correct, with the possible exception of the grading, which is practically completed except about three-quarters of a mile from Sagamore to the Bourne-Sandwich line, upon which practically no work has been done." The department estimated that it would require about \$20,000 to complete the line and reported as follows in regard to rolling stock, car houses and power supply: —

The Plymouth and Sandwich Street Railway Company has three single truck open cars, two single truck box cars and one double truck box car. The company now has an agreement with the Brockton and Plymouth Street Railway Company for the joint use of the latter's track to Plymouth, and expects to continue this use and to arrange for the use by the Brockton and Plymouth of the new track to Sagamore. For the schedule of the coming winter, it is expected to run cars on 1 hour or 1½ hours headway, for which no additional rolling stock would be required, other than a snow plow for the use of which it expects to arrange with the Brockton and Plymouth.

At present, the company has a small car barn of five-car capacity at

Manomet, but contemplates beginning the construction of an eight or ten-car house at Sagamore in the spring of 1917.

At present the company takes power from the Brockton and Plymouth at Plymouth. It is intended to continue this use of power and to extend a feeder to a connection with the Southeastern Massachusetts Power and Electric Company's (successor to the Marion Gas and Electric Company) line under an agreement, already made, at a point near Sagamore.

Since this report was filed, the company, under date of December 8, 1916, has written the Commission as follows: —

On December 6, 1916, the amount of track construction completed had increased to 10.28 miles, leaving but 1.47 miles of track construction to be done. As the new road built by the Town of Bourne south of the Canal will reduce the distance .08 of a mile, the uncompleted track construction becomes 1.39 miles, of which but .66 miles is north of the Canal.

The contract with H. P. Converse and Company, a copy of which is on file in the office of the Commission, provides that the street railway company shall pay to the contractors, for the necessary work and materials, the sum of \$202,257 under the following conditions: —

On or about the first of each month the contractor shall render invoice for material furnished and work done. The supervising official or his representative shall approve said invoice promptly if same is in accordance with contract and specifications.

On or before the tenth of said month the Railway Company shall pay said invoice in cash.

The contractor agrees to accept in lieu of  $12\frac{1}{2}$  per cent. of each cash payment, above provided for, common stock of said Railway Company issued at par.

The contractor agrees to accept in lieu of the remaining  $87\frac{1}{2}$  per cent. of the said payments, construction notes upon the terms hereinafter set forth. In case the contractor cannot dispose of said notes for cash at not less than  $87\frac{1}{2}$  per cent. of their face value before the 25th of said month, it is hereby agreed that he may return said notes and the Railway Company agrees to pay in cash as provided under "Method of Payment."

The construction notes, above mentioned, under the form now agreed upon run from one year from date and it is provided that the holder thereof shall have the right to exchange the note at par "for a certificate of six per cent cumulative preferred stock of the company of equal par value, after approval of such issue by the Public Service Commission of Massachusetts." The

street railway company states that the "total cost of construction by H. P. Converse and Company to October 31, 1916" was \$151,611.75, which was met as follows: —

Notes issued for construction, . . . . .	\$121,569 41
Paid for by sale of 171 shares common stock, . . . . .	17,100 00
Balance due for construction, . . . . .	267 06
Bill of November 1, 1916, for October construction, not yet due, . . . . .	12,675 28
	<hr/>
	\$151,611 75

Since this statement was presented, the bill for October construction has, it appears, been met through the issue of further notes. The balance sheet of the company on October 31, 1916, was as follows: —

<i>Assets.</i>	
Road and equipment, . . . . .	\$353,971 62
Cash, . . . . .	728 02
Accounts receivable, . . . . .	83 66
Surplus, . . . . .	5,868 36
	<hr/>
	\$360,651 66
<i>Liabilities.</i>	
Common stock, . . . . .	\$89,100 00
Preferred stock, . . . . .	57,000 00
Notes payable, . . . . .	192,793 70
Accounts payable, . . . . .	3,432 75
Matured dividends unpaid, . . . . .	1 50
October construction, not due, . . . . .	12,675 28
Accrued depreciation, equipment, . . . . .	263 66
Outstanding tickets, . . . . .	24 05
Advances in excess of securities issued, . . . . .	1,585 09
Other unadjusted credits, old accounts (doubtful), . . . . .	3,775 63
	<hr/>
	\$360,651 66

On May 22, 1913, the Commission approved the issue by the company of \$57,000 of preferred stock and \$140,000 of common stock, the proceeds of preferred stock amounting to \$27,000 "to be applied exclusively to the payment of floating indebtedness properly incurred in the construction and equipment of the railway and in the purchase of property necessary for its operation," and the proceeds of the remaining preferred stock and all of the common stock to be "applied exclusively to the payment of the necessary cost of building and equipping an extension of its

railway in the towns of Plymouth, Sandwich and Bourne." Under this authorization the company has issued the entire amount of preferred stock and \$29,100 par value of the common stock, and these amounts are included in the balance sheet given above. On June 15, 1915, the company petitioned for approval of a further issue of \$87,000 of preferred stock, the proceeds to be used in connection with the building of the new line. No action has as yet been taken by the Commission upon this petition, owing to delay on the part of the company in furnishing necessary information.

At the hearing on August 3, 1916, a representative of the Boston firm of Hodgdon, Cashman and Company, underwriters and dealers in securities, testified that this firm had agreed with H. P. Converse and Company to underwrite construction notes of the street railway company sufficient to cover the contract price. In a letter to the Plymouth and Sandwich Street Railway Company, dated May 11, 1916, a copy of which is on file in the office of the Commission, Hodgdon, Cashman and Company agree to accept such notes and also agree that, if they are not paid at maturity with preferred stock of the Plymouth and Sandwich Street Railway Company of good standing, a renewal will be effected without additional cost to the railway.

It has been urged that the words "reasonably *sufficient* financial arrangements," as used in the statute above cited, are equivalent to the words "reasonably *sound* financial arrangements" and that the Commission cannot properly issue the desired certificate if it appears that the construction of the road has been or is being financed largely by the creation of floating indebtedness and without the issue of stock sufficient in amount to insure a reasonable measure of financial stability to the enterprise. In the judgment of the Commission, however, it is by no means clear that this was the intent of the General Court or that the meaning indicated can properly be read into the language which was used. If the word "sound" had been intended instead of the word "sufficient," no good reason can be offered for the failure to use it. It rather appears that the Legislature was endeavoring to insure, not the financial stability of the company, but the actual completion of a street railway line between Plymouth and Sandwich. The town of Plymouth has from the beginning, if we understand the situation correctly, desired an opportunity to invest in the undertaking, not so much in the hope of securing a direct return upon its investment but rather to



secure the supposed advantages which would accrue to the town from railway connection with the territory lying immediately to the south. The town was the petitioner for the 1911 legislation and the safeguard in the statute, which was not sought in the original bill, was intended, in the opinion of the Commission, to insure these advantages rather than to offer immediate protection to the town's investment.

Upon this construction of the statute, the Commission has reached the conclusion, that inasmuch as so large a portion of the construction work has already been done and so little remains to be done, it is highly probable that, if the town subscribes to the common stock of the street railway company in accordance with its vote of March 25, 1911, the road will be completed, and that the Commission is justified in issuing the desired certificate. In issuing this certificate, however, the Commission must not be understood as expressing any opinion in regard to the financial stability and soundness of the enterprise.

After notice and hearing and further investigation it is, —

*Ordered*, That the Commission, acting under the provisions of section 1 of chapter 95 of the Acts of 1911, hereby certifies that in its judgment reasonably sufficient financial arrangements have been made to permit the completion by the Plymouth and Sandwich Street Railway Company of a railway between Plymouth and Sandwich.

By the Commission,

ANDREW A. HIGHLANDS,

DECEMBER 20, 1916.

[P. S. C. 1430]

*Secretary.*

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*Petition of the Grafton and Upton Railroad Company for approval of an issue of bonds.*

This is a petition of the Grafton and Upton Railroad Company for approval of an issue of first mortgage five per cent (5%) gold bonds to an amount not exceeding two hundred fifty thousand dollars (\$250,000) at par value, to be dated January 1, 1917, to be payable twenty-five (25) years from the date thereof and to bear interest at the rate of five per cent (5%) per annum, the proceeds to be used in payment of a note of the petitioner now outstanding to the amount of two hundred fifty thousand dollars (\$250,000) bearing interest at six per cent (6%) per annum, dated August 1, 1916, and becoming due June 1, 1917, or the

bonds to be exchanged for said note. The floating indebtedness represented by this note was incurred to pay, in part, two hundred fifty thousand dollars (\$250,000) of first mortgage and eighteen thousand dollars (\$18,000) of second mortgage bonds which matured in 1912 and 1913 respectively.

The several balance sheets of the company show that the first mortgage bonds, which matured in 1912, were issued as follows: nine thousand dollars (\$9,000) in 1875, one thousand dollars (\$1,000) in 1876, ninety thousand dollars (\$90,000) in 1888, and one hundred fifty thousand dollars (\$150,000) in 1889, total two hundred fifty thousand dollars (\$250,000). These bonds were not issued under public supervision, but, in order that the relation of the outstanding securities to the value of the property might be determined, the company decided, in 1911, to have a physical valuation made of its property. Mr. E. K. Turner, an engineer who was frequently employed by the board of railroad commissioners at that period for expert work in connection with its approval of capital stock and bond issues, made the appraisal, a copy of which is on file in the present case. The cost of road and equipment, as it appeared upon the books in 1911, was \$651,519.61 and Mr. Turner's appraisal, based upon the "present value," showed that the property was worth at that time, \$549,933.56, or \$101,586.05 less than the book value. During the year 1913 the book value of the property was reduced \$101,890.60 and the amount was charged to profit and loss. After this reduction had been made the book value of the permanent property was in excess of the outstanding capital stock plus the floating debt, which debt is now to be funded. In view of this appraisal and the subsequent reduction in book values, the Commission is of the opinion that the present floating indebtedness may now be regarded as representing expenditures reasonably necessary for lawful capital purposes for which permanent securities may properly be issued.

It appearing, after notice and hearing and full investigation by the accounting department of the Commission, that the proposed issue of bonds is for a lawful purpose and of an amount reasonably necessary for such purpose, — it is

*Ordered*, That the approval of the Commission be hereby given to the issue by the Grafton and Upton Railroad Company of mortgage bonds to an amount not exceeding at par value two hundred fifty thousand dollars (\$250,000), payable twenty-five (25) years from the date thereof and bearing interest at the rate

of five per cent (5%) per annum as an issue of bonds reasonably necessary and of the amount required for the purpose set forth in the corporation's petition dated November 8, 1916, of paying certain floating indebtedness to the amount of two hundred fifty thousand dollars (\$250,000) properly incurred in payment of bonds of said petitioner to said amount of two hundred fifty thousand dollars (\$250,000) which became due November 1, 1912.

Any excess in the proceeds of these bonds which may be realized from premiums shall be held for such application to cost of permanent additions to and improvements upon the property of the petitioner, as the Commission shall hereafter approve.

Attest:                   ANDREW A. HIGHLANDS,  
DECEMBER 30, 1916.   [P. S. C. 1564]                   Secretary.

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*Petition of the West End Street Railway Company for approval  
of issue of bonds.*

This is a petition from the West End Street Railway Company representing that it desires to issue \$815,000 and \$1,581,000, par value, of its negotiable bonds, as being reasonably requisite for the purpose of providing means for the payment of \$815,000 bonds of the West End Street Railway Company due May 1, 1916; and of \$1,581,000 bonds of the West End Street Railway Company due August 1, 1916.

It appears that under date of July 2, 1915, the Commission issued an order (P. S. C. 959), approving an issue by the West End Street Railway Company of four million, seven hundred forty-three thousand dollars (\$4,743,000) of bonds for the purpose of refunding a like amount which became due August 1, 1915. The company, however, deeming it inexpedient at that time to issue long-term bonds, issued bonds to the amount of four million, seven hundred forty-three thousand dollars (\$4,743,000), bearing interest at the rate of five per cent (5%) per annum, of which amount one million, five hundred eighty-one thousand dollars (\$1,581,000) were payable in one year from August 1, 1915; one million, five hundred eighty-one thousand dollars (\$1,581,000) were payable in two years; and one million, five hundred eighty-one thousand dollars (\$1,581,000) were payable in three years from August 1, 1915. The issue of bonds to the amount of one million, five hundred eighty-one thousand dollars (\$1,581,000), for which approval is now asked, is for the purpose

of refunding the first-named of the issues to that amount, referred to above. The issue of bonds to the amount of eight hundred fifteen thousand dollars (\$815,000), for which approval is now asked, is for the purpose of refunding bonds of that amount which were dated May 1, 1896, and are a part of an issue of two million, two hundred seventy-five thousand dollars (\$2,275,000) approved by the board of railroad commissioners by order dated January 10, 1896 (R.R. C. 1253).

It appearing, after notice and hearing and further investigation, that the proposed issues of bonds are for lawful purposes and are consistent with the public interests, — it is

*Ordered*, That the approval of the Commission be hereby given to the issue by the West End Street Railway Company of coupon or registered bonds to an amount not exceeding at par value eight hundred fifteen thousand dollars (\$815,000), said bonds to be payable not exceeding thirty years from the date thereof, and to bear interest at a rate not to exceed five and one-half per cent ( $5\frac{1}{2}\%$ ) per annum, as an issue of bonds reasonably necessary and of the amount required for the purpose of refunding outstanding bonds of the West End Street Railway Company to the amount of eight hundred fifteen thousand dollars (\$815,000) which become due May 1, 1916.

It is

*Further ordered*, That the approval of the Commission be hereby given to the issue by the West End Street Railway Company of coupon or registered bonds to an amount not exceeding at par value one million, five hundred eighty-one thousand dollars (\$1,581,000), said bonds to be payable not exceeding thirty years from date thereof, and to bear interest at a rate not to exceed five and one-half per cent ( $5\frac{1}{2}\%$ ) per annum, as an issue of bonds reasonably necessary and of the amount required for the purpose of refunding outstanding bonds of the West End Street Railway Company to the amount of one million, five hundred eighty-one thousand dollars (\$1,581,000) which become due August 1, 1916.

Any excess in the proceeds of these issues of bonds over the amount above named, which may be realized from premiums, shall be held for such application to the cost of permanent additions to and improvements in the property of the petitioner as the Commission shall hereafter approve.

Attest:

ALLAN BROOKS,  
*Assistant Secretary.*

APRIL 6, 1916. [P. S. C. 1266]



*Petition of the Worcester and Warren Street Railway Company for approval of an issue of additional capital stock and bonds.*

This is a petition of the Worcester and Warren Street Railway Company for approval of an issue of capital stock of the par value of ten thousand six hundred dollars (\$10,600) and of mortgage bonds to an amount not exceeding at par value eighty-five thousand dollars (\$85,000), the bonds to be part of an issue not to exceed two hundred thousand dollars (\$200,000), dated March 1, 1916, payable twenty (20) years from the date thereof and to bear interest at the rate of five per cent (5%) per annum, for the purpose of making permanent additions to and improvements upon the property of the Warren, Brookfield and Spencer street railway, recently purchased at a receiver's sale; for paying floating indebtedness properly incurred for lawful purposes and for supplying the company with working capital. The schedule of expenditures on file with the petition shows the amount expended for additions to and improvements upon the property to have been two thousand seven hundred sixty-seven dollars and eighteen cents (\$2,767.18); the amount expended on account of the rehabilitation of the property to have been six thousand forty-seven dollars and forty-seven cents (\$6,047.47); and the contemplated expenditures on account of rehabilitation to be eight thousand three hundred sixty-three dollars and ninety cents (\$8,363.90). These expenditures are to be made for certain specific items as set forth in a schedule on file with the petition. It is desired that five thousand three hundred dollars (\$5,300), which is five per cent (5%) of the present capital stock of the company, be allowed for the purpose of supplying it with working capital in accordance with the provisions of chapter four hundred and eighty-five of the acts of 1909, that "a street railway company for the purpose of supplying itself with working capital may . . . increase its capital stock to an amount not exceeding five per cent of the par value of its capital stock then outstanding, or may issue bonds, secured by mortgage or otherwise, to an amount, beyond the amounts fixed and limited by its agreement of association, or by the provisions of any general or special law, and not more than the board of railroad commissioners [public service commission] shall determine will be properly required for such purpose, and as said board shall approve as being consistent with the interest of the public and of the stockholders of such company and as not unreasonably

reducing the security of any bond previously issued." Notes are to be retired representing a part of the purchase price of the property to the amount of fifty-four thousand dollars (\$54,000), the total amount of these items being seventy-six thousand four hundred seventy-eight dollars and fifty-five cents (\$76,478.55). The securities desired are an issue of capital stock of the par value of ten thousand six hundred dollars (\$10,600) and of mortgage bonds to an amount which will yield sixty-four thousand five hundred fifty dollars (\$64,550).

It appearing, after notice and hearing and full investigation by the engineering and accounting departments of the Commission that the proposed issues of capital stock and bonds are for lawful purposes and of an amount reasonably necessary for such purposes, — it is

*Ordered*, That the approval of the Commission be hereby given to the issue by the Worcester and Warren Street Railway Company at a price of one hundred dollars (\$100) per share, as fixed by its stockholders, of additional shares of capital stock not exceeding one hundred six (106) in number, amounting at par value to ten thousand six hundred dollars (\$10,600), as an issue of stock reasonably necessary and of the amount required for the purpose of paying certain floating indebtedness properly incurred as a part of the purchase price of the property of the Warren, Brookfield and Spencer street railway.

It is

*Further ordered*, That the approval of the Commission be hereby given to the issue by the Worcester and Warren Street Railway Company of coupon or registered bonds to an amount not exceeding at par value seventy-two thousand dollars (\$72,000), payable twenty (20) years from the date thereof and bearing interest at the rate of five per cent (5%) per annum, as an issue of bonds reasonably necessary and of the amount required for the purposes set forth in the company's petition, dated February 4, 1916, of paying certain floating indebtedness properly incurred in the purchase of the property of the Warren, Brookfield and Spencer street railway; in additions and improvements upon the property and in the purchase of property necessary for its operation, described in the schedule on file with the petition; in providing means for meeting the necessary cost of additions to and improvements upon the property of the petitioner, described in said schedule; and for providing working capital to the amount of five thousand three hundred dollars (\$5,300); and it is

*Further ordered*, That said bonds shall not, without a further order of this Commission, be sold at less than ninety per cent (90%) of their par value; and that the petitioner be hereby required to pay into a sinking fund, established by an agreement between said petitioner and the International Trust Company, as trustee, which agreement shall be subject to approval by an order of this Commission, the sum of two hundred fifty-four dollars and twenty-four cents (\$254.24) per annum, by equal semi-annual payments on June 30th, and December 31st in each year until the maturity of said bonds, except as this requirement may hereafter be modified by this Commission, and to make the first of such semi-annual payments on June 30th next.

Attest:                   ANDREW A. HIGHLANDS,  
APRIL 26, 1916.       [P. S. C. 1259]                   *Secretary.*

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*Application of the Worcester and Warren Street Railway Company for approval of agreement with the International Trust Company, as trustee, relative to the establishment of a sinking fund.*

It appearing that, under the provisions of chapter 536 of the Acts of 1910, the Worcester and Warren Street Railway Company has entered into an agreement with the International Trust Company, of Boston, dated June 20, 1916, whereby it has, in connection with an issue of bonds to the amount of seventy-two thousand dollars (\$72,000), approved by the Commission under date of April 26, 1916, established a sinking fund estimated to realize at the maturity of said bonds seven thousand dollars (\$7,000), a sum substantially equal to the difference between the amount for which said bonds were approved and the face value of said bonds, — it is

*Ordered*, That the approval of the Commission be hereby given to the provisions of the above agreement, a copy of which is on file in this office, and that the International Trust Company, of Boston, be hereby approved as trustee of said sinking fund.

Attest:                   ALLAN BROOKS,  
JUNE 24, 1916.       [P. S. C. 1259]                   *Assistant Secretary.*

CAR CONSTRUCTION.

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*Petition of the Boston Elevated Railway Company for approval of type of cars.*

After consideration, — it is

*Ordered,* That the approval of the Commission be hereby given to the purchase by the Boston Elevated Railway Company of fifty (50) additional cars of the trailer type, substantially according to plans approved by the Commission under an order (P. S. C. 808) dated December 17, 1914.

Attest: ALLAN BROOKS,  
APRIL 5, 1916. [P. S. C. 808] Assistant Secretary.

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*Petition of the Bay State Street Railway Company for approval of type of one-man car.*

After consideration, — it is

*Ordered,* That the approval of the Commission be hereby given to type of a one-man car, to be constructed by the Bay State Street Railway Company, as shown on blue-print, on file with the petition, entitled "Bay State St. Ry. Co., Dept. of Motive Power & Machinery, Car Equipment, Proposed One-Man Car, No. 83666, September 9, 1916."

Attest: ANDREW A. HIGHLANDS,  
OCTOBER 10, 1916. [P. S. C. 1083-C] Secretary.

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During the year other orders approving types of cars have been issued, as follows: —

Bay State street railway, November 17, 1916 — two hundred reconstructed 28-ft. semi-convertible cars, pay-as-you-enter type, shown on plan numbered 38036. [P. S. C. 1583-A]



Bay State street railway, September 22, 1916 — convertible car, general arrangement, plan numbered 77577. [P. S. C. 1093-D]

Boston Elevated railway, February 18, 1916 — ten closed surface cars of the "Easy Access" type, as shown on plans numbered 13255-A and 13257-A. [P. S. C. 1264-A]

Boston Elevated railway, April 5, 1916 — fifty-two articulated cars made up from 25 ft. units, as shown on plans numbered 11708-E, 11710-E, 11711-B, 11712-B, 11713-E, 11714-D and 11743-B. [P. S. C. 825]

Boston Elevated railway, July 14, 1916 — forty-two rapid transit cars, as shown on plans numbered 13358-A and 133530. [P. S. C. 1264-B]

Boston Elevated railway, July 14, 1916 — one hundred center entrance cars, as shown on plans numbered 13363-B and 13364-B. [P. S. C. 1264-C]

Boston Elevated railway, August 3, 1916 — design, arrangement and construction of platforms on fifty-two articulated cars approved April 5, 1916. [P. S. C. 1264-D]

Boston Elevated railway, August 14, 1916 — fifty articulated cars made up from 25 ft. units, substantially according to plan marked 11743-C, having design, arrangement and construction of platforms substantially in accordance with plan marked 13547-A. [P. S. C. 1264-E]

Boston Elevated railway, November 3, 1916 — modification of order of July 14, 1916, as to purchase of one hundred center entrance cars, in relation to floor construction, as shown on revised blue prints numbered 13363-C and 13364-B, each dated October 20, 1916. [P. S. C. 1264-B]

Boston and Worcester street railway, April 4, 1916 — four express cars, as shown on blue-print marked "Electric Express Car General Arrangement Dec. 4, 1915." [P. S. C. 1298]

Massachusetts Northeastern street railway, April 27, 1916 — twelve passenger cars substantially according to plans numbered 13188-G, 13189-G, 12427-I. [P. S. C. 1312]

Union street railway, June 14, 1916 — twelve convertible motor car type, as shown on plan marked "30'-0' convertible motor car general arrangement June 2, 1916." [P. S. C. 1387]

## CAR STEPS.

*Petition of the Plymouth and Sandwich Street Railway Company for approval of changes in running boards on open cars.*

This petition is brought in accordance with an order of the Commission [P. S. C. 576], issued under date of July 20, 1914. After consideration, — it is

*Ordered*, That the approval of the Commission be hereby given to the use on open cars numbers 2 and 4 of the Plymouth and Sandwich Street Railway Company, of the Bay State type of single-folding double running boards substantially in accordance with blue print 71530, dated April 15, 1915, on file with the petition.

Attest:                   ANDREW A. HIGHLANDS,  
OCTOBER 9, 1916.      [P. S. C. 1521]                   Secretary.

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In accordance with an order of the Commission, P. S. C. 576, issued under date of July 20, 1914, the Commission has issued other orders approving the type of steps for installation on street railway cars, as follows:

Concord, Maynard and Hudson street railway, January 22, 1916 — Osgood Bradley Car Company type of folding step. [P. S. C. 839]

Connecticut Valley street railway, January 22, 1916 — Osgood Bradley Car Company type of folding step. [P. S. C. 839]

Northern Massachusetts street railway, January 22, 1916 — Osgood Bradley Car Company type of folding step. [P. S. C. 839]

In accordance with an order of the Commission, P. S. C. 576, dated July 20, 1914, good cause having been shown, the Commission issued other orders in relation to extending the time in which to complete the work of changing steps on street railway cars, as follows:

Attleborough Branch Railroad, June 29, 1916 — time extended to July 1, 1917. [P. S. C. 831]

Bay State street railway, June 27, 1916 — time extended to July 1, 1917. [P. S. C. 831]

Blue Hill street railway, June 27, 1916 — time extended to July 1, 1917. [P. S. C. 831]

Boston Elevated railway, June 27, 1916 — time extended to July 1, 1917. [P. S. C. 831]

Bristol County street railway, receivers of, June 30, 1916 — time extended to July 1, 1917. [P. S. C. 831]

Brockton and Plymouth street railway, June 27, 1916 — time extended to July 1, 1917. [P. S. C. 831]

East Taunton street railway, June 28, 1916 — petition filed. [P. S. C. 831]

Interstate Consolidated street railway, June 29, 1916 — time extended to July 1, 1917. [P. S. C. 831]

Norfolk and Bristol street railway, June 27, 1916 — time extended to July 1, 1917. [P. S. C. 831]

Oak Bluffs street railway, June 27, 1916 — time extended to July 1, 1917. [P. S. C. 831]

Providence and Fall River street railway, June 27, 1916 — time extended to July 1, 1917. [P. S. C. 831]

Taunton and Pawtucket street railway, June 28, 1916 — petition dismissed. [P. S. C. 831]

CAR HEATING.

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*Petition of J. H. Hustis, Temporary Receiver of the Boston and Maine Railroad, for exemption from the requirements of law in relation to heating cars by steam.*

After consideration, — it is

*Ordered*, That the Boston and Maine Railroad be hereby exempted until the first day of October, 1917, from the law requiring passenger cars to be heated by steam from the locomotive, in respect to cars on certain mixed trains on the Merrimac Branch of the Portland division, the Ashburnham Branch of the Fitchburg division, the Acton Branch of the Worcester, Nashua and Portland division, and the Easthampton Branch of the Connecticut and Passumpsic division, all of said cars to be heated by the Baker heater, heretofore approved by the board of railroad commissioners.

Attest:                      ANDREW A. HIGHLANDS,  
OCTOBER 9, 1916.      [P. S. C. 1528]                      *Secretary.*

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Similar orders were granted the New York, New Haven and Hartford Railroad Company for its Boston, Old Colony, New Haven, Highland and Midland divisions under date of October 4, 1916, (P. S. C. 1519).



CROSSINGS, RAILROAD OR RAILWAY.

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*Petition of Lowell and Fitchburg Street Railway Company for approval of location in Main street in the town of Ayer and for authority to construct its railway in said Main street in said town of Ayer across the tracks of the Worcester, Nashua and Portland division of the Boston and Maine railroad at the same grade therewith.*

These were two separate petitions of the Lowell and Fitchburg Street Railway Company, one for the approval of the location granted by the selectmen of Ayer and the other, under section 21 of Part I of chapter 463 of the Acts of 1906, for consent to construct its railway across the tracks of the Boston and Maine railroad at this point at grade. As they have certain aspects in common, these petitions were heard jointly.

The present easterly terminus of the location of the Fitchburg and Leominster street railway is in Main street in the town of Ayer about sixty feet from the point where the main tracks of the Worcester, Nashua and Portland division of the Boston and Maine railroad cross at grade. The present westerly terminus of the location of the Lowell and Fitchburg street railway is in the same street on the opposite side of the tracks and at the same distance from the crossing. The Lowell and Fitchburg company has been granted by the selectmen of Ayer an extension of its location in said Main street across the tracks of the railroad to the easterly terminus of the Fitchburg and Leominster railway, and now asks for the approval of this location and consent to the construction of its tracks across the tracks of the steam railroad at grade, thereby connecting the two street railway lines physically and making possible through routing of cars.

The advantages to be derived by this connection, as pointed out by those who appeared in favor of these petitions, would be the avoidance of the change of cars in Ayer and the fact that patrons of these railways would then be able to ride from one part of the town to the other for one fare where they now pay two. It also appears that the railroad station at Ayer is only

some three hundred feet south of the crossing and that all passenger trains on this line stop there, so that the speed of trains at the crossing is not great. It is also true that the view in either direction, from the point where the flagman is stationed, is good.

Section 21 of Part I of chapter 463 of the Acts of 1906, under which the consent of the Commission to the crossing at grade is asked, is as follows: —

A street railway shall not be constructed across the tracks of a railroad nor shall a railroad be constructed across the tracks of a street railway at the same level therewith without the consent of the board of railroad commissioners.

This was originally section 1 of chapter 426 of the Acts of 1895 and was enacted by the General Court upon the recommendation of the board of railroad commissioners, a recommendation which appears upon page 123 of its 26th annual report (1894) and which was as follows: —

The Board again calls attention to the need of legislation in regard to the crossing of railroads and electric street railways on the same level. It seems little less than absurd to pursue further the costly policy of trying to get rid of the grade crossings of railroads with highways, the Commonwealth contributing heavily to the expense, while the crossings of steam and electric roads at grade are multiplying on every hand without any systematic regulation or effective restraint.

Since the passage of this statute, it has been rigidly administered, and new crossings of railroads and railways at grade have seldom been permitted and only where the advantages seemed clearly to largely outweigh the disadvantages. In the present case, the situation is such that to carry the tracks of the street railway either over or under the tracks of the steam railroad does not seem to the Commission practical, unless the present highway grade crossing is abolished at one and the same time. The cost of this would be so great and the benefits to be derived so disproportionate to the expense, when the traffic over the crossing and the conditions surrounding it are considered, that it will probably be some considerable period of time before such an abolition is undertaken.

In view of the conditions herein stated, therefore, and to serve the present necessity and convenience of the public, the Commission feels that it is justified in permitting an exception to the general rule indicated by the statutes and will authorize the

crossing of the tracks at grade, but only subject to the express limitations and restrictions set forth in this order.

It is, therefore

*Ordered*, That the Commission hereby certify that the location for the tracks of the Lowell and Fitchburg Street Railway Company in the highway known as Main street in the town of Ayer, established under an order of the selectmen of said town dated May 3, 1915, a copy of which order, with accompanying plan, is on file in this office, is consistent with the public interests. And it is further

*Ordered*, That the consent of the Commission be hereby given to the construction by the petitioner of its street railway track across the tracks of the Worcester, Nashua and Portland division of the Boston and Maine railroad at the same grade therewith upon Main street in the town of Ayer, as shown upon a plan on file in this office, subject to the following conditions and regulations.

1. There shall be but one street railway track across the railroad tracks at this place.

2. The crossing shall be constructed and maintained by and at the cost of the street railway company in a manner satisfactory to the railroad company, or, if the parties do not agree in regard thereto, in such manner as shall be prescribed by the Commission.

3. The street railway company, in addition to other precautions and safeguards required by law or rules and regulations, shall at its own cost place and maintain at said crossing, during all that portion of each day or night within which it runs cars over said crossing, a competent and reliable man, whose sole duty it shall be to see that the said crossing and the overhead construction thereat are in good repair and working order, to keep himself informed of the running time of trains and whether any train is overdue, and to watch for and give warning of any approaching engine, car or train. No street railway car shall cross or attempt to cross the railroad except when and as he shall direct.

4. The street railway company shall from time to time provide and maintain such further safeguards at said crossing as the Commission may deem necessary.

5. This right to maintain the railway track across the railroad track at grade shall cease upon the abolition of the highway grade crossing, and in any event upon the first day of February, 1920, unless otherwise ordered by the Commission.

6. The foregoing conditions, limitations and regulations shall be, from time to time, subject to change and modification.

For the Commission,

ANDREW A. HIGHLANDS,  
FEBRUARY 2, 1916. [P. S. C. 986, 987] *Secretary.*

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PRIVATE RAILROADS.

*Petition of the Fore River Shipbuilding Corporation for extension of time for maintaining private freight tracks across highways at grade in Quincy and Braintree.*

Under an order of the board of railroad commissioners issued May 6, 1903, the Fore River Ship and Engine Company, predecessor of the petitioner, was authorized to construct and maintain a private freight track across certain public highways in Quincy and Braintree, for a period expiring September 1, 1905. On application, this authority has been from time to time extended, and the petitioner now asks for a further extension.

After notice and hearing and full consideration, — it is

*Ordered,* That the period within which these crossings may be maintained be extended to December 1, 1918.

Attest: ANDREW A. HIGHLANDS,  
JANUARY 28, 1916. [P. S. C. 1237] *Secretary.*

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*Petition of the Merrimac Valley Power and Buildings Company for authority to construct and maintain an industrial railroad track across the tracks of the Massachusetts Northeastern street railway in Amesbury.*

After notice and hearing and full consideration, — it is

*Ordered,* That the consent of the Commission be hereby given to the maintenance by the petitioner of a crossing at grade of the tracks of the Massachusetts Northeastern street railway in Market square in the town of Amesbury by the industrial track of the petitioner upon the conditions that every car of the petitioner come to a full stop within fifty feet of the street railway tracks upon approaching the crossing in either direction and then proceed to cross at a speed not greater than four miles an hour.

Attest: ANDREW A. HIGHLANDS,  
FEBRUARY 25, 1916. [P. S. C. 1257] *Secretary.*



*Petition of the Eastern States Agricultural and Industrial Exposition, Inc., for consent to the construction and maintenance of railroad for private use across certain highways in the town of West Springfield.*

It appearing that the county commissioners of Hampden county have adjudged that public necessity requires that the proposed railroad cross the highways at a level therewith; that the selectmen of the town of West Springfield have consented thereto, and that the same is consistent with the public interests, — it is

*Ordered*, That the consent of the Commission be hereby given to the construction and maintenance by the petitioner of a railroad for private use in the transportation of freight, to be operated by steam power, upon and across the highways known as New Bridge street and Bramble avenue in the town of West Springfield, as shown upon plans on file with the petition, the crossing of said railroad over the tracks of the street railway located in said New Bridge street to be constructed and maintained by the petitioner at its own expense and in a manner satisfactory to the Springfield Street Railway Company, or, if the parties do not agree, in such manner as the Commission shall prescribe.

This consent is given upon the condition that a flagman shall display a flag by day and a lantern by night whenever an engine, car or train is approaching and while it is passing over said crossings, and that no engine, car or train shall cross at a greater speed than four miles an hour.

Attest:                      ANDREW A. HIGHLANDS,  
AUGUST 17, 1916.      [P. S. C. 1323]                      *Secretary.*

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During the year additional orders have been issued consenting to the construction of railroads for private use in the transportation of freight across highways, as follows: —

Boston, June 21, 1916 — American Sugar Refining Company, across Granite street, South Boston. [P. S. C. 1394]

Boston, January 11, 1916 — Felton and Son, Inc., across East First and Dorchester streets, South Boston. [P. S. C. 1203]

Boston, June 21, 1916 — Summer Street Extension Trust, across Fargo street, South Boston. [P. S. C. 1363]

Boston, June 1, 1916 — United Drug Company, across Bryant street, Roxbury. [P. S. C. 1359]

## SAFEGUARDS AT CROSSINGS.

*Petition of the selectmen of Danvers relative to the need of protection at the Charter street crossing of the Boston and Maine railroad in the town of Danvers.*

Charter street crosses the tracks of the Boston and Maine railroad just west of the railroad station at Danvers and is located in a well-settled section of the town. There is a large amount of traffic over this crossing by school children and others by reason of its proximity to the schoolhouse and railroad station. The view of trains approaching from the east is somewhat obstructed by a building close to the tracks.

In consideration of the conditions which exist at this crossing as stated above, the Commission believes that better protection should be provided thereat, and it is therefore

*Ordered*, That the Boston and Maine Railroad be hereby required to provide flag protection at the Charter street crossing in the town of Danvers during the passing of all trains over said crossing, between the hours of 7.00 A.M. and 6.00 P.M. each day excepting Sundays.

Attest: ANDREW A. HIGHLANDS,

APRIL 11, 1916. [P. S. C. 1103]

Secretary.

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*Petition of mayor of New Bedford that gates be installed at certain highway crossings of the New York, New Haven and Hartford railroad in the city of New Bedford.*

This was a petition of the mayor of New Bedford, brought by direction of the city council, that gates be placed across the following highways at railroad crossings within the limits of New Bedford, viz., Tarkiln Hill road, Nash road, Mount Pleasant street. The inspection department of the Commission has made a careful examination of these three crossings and has made a report in which the view is taken that, while gates are hardly necessary at the present time, it is advisable that all three crossings be protected by flagmen for the passing of all trains.

It is therefore

*Ordered*, That the New York, New Haven and Hartford Railroad Company be hereby required to provide protection for each of the following three crossings in the city of New Bedford, during the passing of all trains over said crossings, viz., the Tarkiln

Hill road crossing, the Nash road crossing and the Mount Pleasant street crossing, said protection to be in addition to any protection already provided at these crossings.

Attest: ALLAN BROOKS,  
 APRIL 6, 1916. [P. S. C. 1099] Assistant Secretary.

#### ABOLITION OF GRADE CROSSINGS.

*Petition of the selectmen of the town of Winchester for a certificate that the adoption of the plan of the special commission appointed by the court for the abolition of the grade crossings of the streets known as Main, Pleasant and Church streets in the town of Winchester and the Boston and Maine railroad in said town, and the expenditures to be incurred thereunder are not consistent with the public interests.*

On July 17, 1905, a petition was filed in the Superior Court for the county of Middlesex by the selectmen of the town of Winchester for the abolition of grade crossings in said town at Main, Pleasant and Church streets; and under section 29, Part I, chapter 463 of the Acts of 1906, a commission was appointed by the court to consider and report upon the same. This special commission filed a report and plan for the abolition of the crossings in question, December 10, 1914.

The plan provides, in substance, for the discontinuance at grade of the present ways within the railroad location, substituting therefor a subway for pedestrians at the present crossing and a new way over the tracks of the Boston and Maine railroad about 620 feet southerly therefrom.

Section 43, Part I, chapter 463 of the Acts of 1906, as amended, provides that —

A final decree shall not be entered by the superior court upon any report of commissioners setting forth a plan for the abolition, discontinuance or alteration of a grade crossing, adopting or confirming such plan or authorizing any expense to be charged against the commonwealth, until the board of railroad commissioners, after a hearing, shall have certified in writing that in their opinion the adoption of such plan and the expenditure to be incurred thereunder are consistent with the public interests, and are reasonably requisite to secure a fair distribution between the different cities, towns and railroads of the commonwealth, of the public money authorized to be expended under the provisions of the preceding section, or section one hundred and fifty-eight of chapter

one hundred and eleven of the Revised Laws for the abolition of grade crossings, and that such expenditure will not, in the judgment of said board, exceed the amounts provided under the provisions of said sections to be paid by the commonwealth. If the members of the board of railroad commissioners are special commissioners under the provisions of section twenty-nine the certificate herein provided for may be issued by said board without a hearing.

Upon the pending petition, brought under the provisions of this act, there were public hearings extending over several days, and a view of the crossing and surrounding territory was taken by the Commission.

The railroad contends that the powers of the Commission, under section 43, constitute only a general supervisory jurisdiction to conserve and apportion the State appropriations for grade crossing abolition work among the several communities and corporations undertaking the work of abolition. Its counsel, stating its view, said (Record, p. 440): —

But that general supervisory jurisdiction, to see that the projects do not conflict and to see that the State's fund is conserved and properly distributed, not wasted in one place, so that there won't be enough elsewhere, is properly placed here (in the Commission) and I believe that is the limit of the Board's jurisdiction.

If this view were to be accepted, the Commission would be limited solely to the consideration of whether the amount to be assessed upon the State in a given case is the statutory proportion of the expense involved to be borne by the commonwealth and constitutes a fair apportionment of the general fund, having in mind the importance of the particular project dealt with and the other grade crossing work under way or to be undertaken in other communities. While such a limited jurisdiction appears to have been fixed by the original grade crossing statute, the extension of the scope of authority by subsequent legislation and the precedents established by the board of railroad commissioners and by this Commission dispose of such a claim.

The original grade crossing statute, chapter 428, Acts of 1890, in section 11, provides: —

SECTION 11. Notice shall be filed by the petitioners with the railroad commissioners of the entry of any petition under the provisions of this act; and in case application shall be made for changes in grade crossings, which will require, in the opinion of said commissioners after an examination of the decision of the commission appointed by the court, a larger



expenditure in any one year on the part of the Commonwealth than the amount provided for by this act, said railroad commissioners shall have full power to decide which, if any, of said pending petitions shall be proceeded with during the year; and no decree shall be entered under any such petition until a certificate is filed thereon by the railroad commissioners, that in their judgment, the expenditure on the part of the Commonwealth will not exceed the amount provided for by this act.

It is not open to question that the only power vested in the board of railroad commissioners by this act was that of protecting the appropriations made by the commonwealth for abolition work. The purpose of this is made evident when it is recalled that a limited annual appropriation was provided, and it was necessary, in those early days of this work, not only to discriminate among the several abolition projects, but to make certain that the total appropriation for the year was not exceeded. In the codification of 1902, the Revised Laws, the power of the Commission was similarly defined, as follows: —

SECTION 159. If applications are made for changes in grade crossings, which will, in the opinion of the board after an examination of the decision of the commission appointed by the court, require a larger expenditure in any one year on the part of the Commonwealth than the amount authorized by the preceding section, said board shall decide which, if any, of said pending petitions shall be proceeded with during the year; and no decree shall be entered under any such petition until a certificate has been filed thereon by the board that, in its judgment, the expenditure on the part of the Commonwealth will not exceed the amount provided for by said section.

But the Legislature of 1902, pursuant to recommendations of Governor Crane, authorized an appropriation of \$500,000 a year for ten years, with a maximum expenditure of \$5,000,000, and extended the scope of the authority of the Commission.

Section 6 of chapter 440 of the Acts of 1902, the terms of which were re-enacted in section 43, Part I, chapter 463, Acts of 1906, quoted above, reads as follows: —

No final decree shall be made by said superior court upon any report of commissioners setting forth a plan for the abolition, discontinuance or alteration of a grade crossing, adopting or confirming such plan or authorizing any expense to be charged against the Commonwealth, until the board of railroad commissioners, after a hearing, shall have certified in writing that in their opinion the adoption of such plan and the expenditure to be incurred thereunder *are consistent with the public interests*, and

are reasonably requisite to secure a fair distribution between the different cities, towns and railroads of the Commonwealth, of the public money appropriated in the preceding section for the abolition of grade crossings, and that such expenditure will not, in the judgment of said board, exceed the amount provided under the preceding section to be paid by the Commonwealth.

The words "consistent with the public interests" were then for the first time made a condition of the approval by the board of railroad commissioners of any plan and expenditure to be incurred for grade crossing work, and this condition was even given priority of position in the definition of the powers of the Commission fixed by the terms of this section of the statute. This broad requirement, "consistent with the public interests," may be said to have been superimposed upon the other requirements which were designed to protect the Commonwealth's fund and which had long been in the law.

It is contended by the company that the phrase, "consistent with the public interests," is virtually surplusage, upon the claim that the conditions following limit and define the meaning of the broader condition quoted, and that it has no significance except as explained by these provisions for the protection and just apportionment of expenditures of the Commonwealth. We cannot accept this view. In our opinion, the words "consistent with the public interests" impose upon the Commission the duty of making a general finding whether the plan and expenditure are consistent with the general public welfare, and the requirements as to the conserving and apportioning of the Commonwealth's fund are additional and special considerations upon which affirmative findings must be made. This view was stated succinctly by the board of railroad commissioners in the Newton case, 1904 (R.R. Comm. 36th Annual Report, p. 51), as follows:—

*We assume it to be our duty under the law now in force, to secure an order of procedure which will be for the general welfare, with a view at the same time to a fair distribution of the public money among the different cities, towns and corporations, and with due regard to the amount of financial burden imposed upon any one of them. In the application of this rule there must always be indirectly felt to a greater or less extent the effect of expenditures already made in different communities.*

This language expressly recognized the three requirements to be considered. First, the general public interest; second, the fair distribution of the money appropriated by the Common-

wealth; third, the proper apportionment of the proportion of the expense to be borne by the State.

The company cited certain cases, also passed upon in 1904, in support of its contention that in the early decisions, subsequent to the enactment of the 1902 statute, the Board asserted no authority other than to protect and fairly apportion the expenditure of the State's appropriation. But in almost all of these cases, the railroad company was the objector and its objection was based upon the expense imposed upon it. In none of the cases was there other objection to the particular plan proposed. In the Acton case cited (36th Report, 1904, p. 43), the Board pointed to the fact that the only objection raised was based upon the amount of abolition work then being done elsewhere by the Boston and Maine Railroad. In the Chelmsford case (36th Report, 1904, p. 47) the Board made it clear that there was no objection to the particular plan proposed; and indeed, in that very year in the Attleborough case (page 44), the Board went into the merits of the plan presented, considering the suggestion that the old railroad station should be raised and used, but dismissing it upon the ground that the raising of the old station would "deprive the public of accommodation and conveniences they now enjoy." In the Lynn case (39th Report, 1907), North Adams case (42d Report, 1910) and Southborough case (42d Report, 1910) the board of railroad commissioners dealt with the merits of the plans reported as affecting the public welfare and, in the latter case, said: —

In our opinion the arrangement shown at the station will be found inconvenient and at times unsafe both for the traveling public and for the operation of the railroad and we are therefore unable to certify that the plan proposed by the special commission is consistent with the public interests.

The manifest intent of the statute under which this proceeding is brought is to confer a power upon the Board somewhat in the nature of a veto. We are in grave doubt, therefore, concerning the extent to which we ought to suggest our views to the special commission; but we deem it proper in fairness to all parties, and in aid of the separation of the grades, to not only indicate more in detail our objections to the arrangement shown at the station but also what modification of such arrangement would appear to be consistent with the public interests.

The Board in that case, after indicating its objections to the plan proposed, sent it back to the special commission having the matter in charge.

In the Leominster case (2d P. S. C. Report, 1914, p. 292) this Commission followed the language of the Southborough case in rejecting the plan of the special commission.

We are convinced that in making a finding whether or not a plan and contemplated expenditure are consistent with the public interests, we must have in mind the interests of the community or communities directly affected as well as the general welfare of the whole Commonwealth. After consideration of all the evidence offered we withhold our approval of the plan proposed by the special commission because it appears that it seriously encroaches upon property dedicated by the town to park and playground purposes; that it makes unduly long and circuitous detours from the direct and long-established routes of travel not only between adjacent parts of the town itself but also between adjoining cities and towns; that it would injuriously affect if not destroy the business center of the town which is now located around the existing crossing upon both sides of the railroad; and that it would not afford a fair equivalent for the facilities now had.

The Commission is convinced that some other plan can be devised for the abolition of this grade crossing, at an expense not greatly in excess of that involved in the plan proposed, which will largely obviate these objections and more satisfactorily serve the general public interest and convenience.

It is therefore

*Ordered*, That the Commission hereby certify that in its opinion the adoption of said plan and the incurring of such expenditure are not consistent with the public interests.

By the Commission,

ANDREW A. HIGHLANDS,

MARCH 4, 1916. [P. S. C. 827]

*Secretary.*

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*Petition of the Boston and Maine Railroad for apportionment of the cost of relocating and reconstructing Silsbee street in Lynn, in connection with the abolition of certain grade crossings in that city.*

On June 26, 1901, a petition was filed under the provisions of section 1 of chapter 428 of the Acts of 1890 (now section 29 of Part I of chapter 463 of the Acts of 1906) in the Superior Court for the county of Essex, by the mayor and board of aldermen of the city of Lynn, for the appointment of a commission for the



abolition of certain grade crossings of the Boston and Maine railroad and certain streets or ways in said city of Lynn, and on September 14, 1903, such a commission was appointed. The report of this commission, after amendment, was finally accepted by the court on June 30, 1909, and the Boston and Maine Railroad was ordered to proceed with the abolition of certain grade crossings, in accordance with said report.

The parties bound by this decree are the Commonwealth, the City of Lynn, the Boston and Northern Street Railway Company (now the Bay State Street Railway Company) and the Boston and Maine Railroad.

Before the work of grade crossing elimination was begun, Silsbee street was carried over the tracks of the Boston and Maine railroad on a bridge situated about 100 feet easterly of the east end of the Lynn passenger station and about 700 feet easterly of Central square. Under the decree, the tracks of the Boston and Maine railroad were to be raised to pass over the former grade crossings at Central square, which brought the grade of the tracks at about the same level as the floor of the bridge at Silsbee street, and Silsbee street was discontinued within the railroad location. In substitution therefor a foot passageway beneath the tracks was ordered.

The report of the special commission provides that the cost of the work should be apportioned as follows:—

Of the total actual cost of the alteration herein prescribed, including therein the cost of changing the street railway as herein prescribed, the cost of hearings, the compensation of the commissioners and auditor for their services and expenses, and all damages including those mentioned in chapter 111 of the Revised Laws and all acts in amendment thereof, the Boston and Maine Railroad shall pay 65 per cent and the city of Lynn 10 per cent.

The remaining 25 per cent we apportion between the Commonwealth and the Boston and Northern Street Railway Company in the following manner:—

We find that the cost of said alteration incident to those crossings in which said Boston and Northern Street Railway Company has its tracks located is 50 per cent of said actual cost, and of this 50 per cent of said total actual cost we decide that the Commonwealth shall pay 10 per cent and said Street Railway Company 15 per cent, and that of the remaining 50 per cent of said total actual cost the Commonwealth shall pay 25 per cent.

On April 16, 1912, after the work called for by the report as finally accepted was begun, chapter 492 of the Acts of 1912 was

enacted. Under the provisions of this act, the Boston and Maine Railroad was authorized to make changes and alterations in its tracks, bridges and locations over and under certain public and private ways and in its stations in the city of Lynn. In substance, the first eleven sections of this act provided for modifications in the amended report of the special Commission, allowing the Boston and Maine Railroad to construct and maintain, upon and adjacent to the present location of its main line, two additional tracks through the city of Lynn, and to acquire upon each side of the present location property necessary therefor. Section 11 of said act provides:—

All additional expense and damage due to the changes from said report, *as set forth in the foregoing provisions of this act*, over and above what the entire cost of the work of altering said grade crossings would have been if carried out according to said report had this act not been passed, shall be borne by said railroad.

This section referred wholly to the preceding ten sections of the act and not to the Silsbee street work. Section 14, which provided for the reconstruction of Silsbee street, and section 15, relative to the apportionment of its cost, read as follows:—

SECTION 14. In connection with and as a part of the abolition of grade crossings on said railroad in said city, now going on by virtue of the operation of said report, that part of Silsbee street in said city hitherto discontinued and abandoned as a part of said abolition shall be relocated and constructed as a public highway for foot passengers, teams and vehicles across the location of the said railroad and under the grade thereof, in such manner as to constitute with the remaining portions of said street now existing a continuous thoroughfare from Broad street to Union street in said city. . . . The cost of the portion of the Silsbee street bridge which will support the two middle tracks shall be borne by the Boston and Maine Railroad. The work involved in said relocation and construction, including the necessary changes in other parts of said street and intersecting streets to conform with said relocation and new construction, shall be done by the Boston and Maine Railroad in connection with and as a part of the work of abolishing the crossings at grade on said railroad in Lynn, as provided by said report. . . . The tracks of the Bay State Street Railway Company shall be relaid on Mount Vernon, Silsbee and Friend streets to conform to the new grades of said streets.

SECTION 15. Except as in this or the preceding section otherwise specifically provided, the provisions of that part of chapter four hundred and sixty-three of the acts of the year nineteen hundred and six relative to the determination, apportionment and payment of cost, including land

damages, of abolition of grade crossings, shall apply to the work authorized by the provisions in the preceding section: *provided, however*, that the apportionment of the proportions of said cost among and between the parties by whom, according to the provisions of said chapter four hundred and sixty-three, said cost is to be paid, shall be made by the board of railroad commissioners, who shall, however, be limited in deciding such proportionate apportionments by the provisions of said chapter four hundred and sixty-three.

It is the additional expense brought about by the modification of the plan authorized by section 14, namely, the building of an underpass for foot passengers, teams and vehicles on Silsbee street in place of the passageway for foot passengers, as provided by the decree of the special Commission, that necessitates the apportionment under section 15 and that brings the matter before this Commission.

The contention of counsel for the Bay State Street Railway Company is that the company has not and never had in that part of Silsbee street, occupied by the railroad, either a track or a location, and therefore that, under the general grade crossing act, section 29, Part I, chapter 463 of the Acts of 1906, providing that "any street railway company having a location in the part of such public way where the crossing exists shall be made a party and entitled to be heard as such," it is not a party to the proceedings and cannot be assessed for any part of this work.

It is clear, by the terms of section 14 of chapter 492 of the Acts of 1912, that the relocation of Silsbee street is to be dealt with, not as a new and independent transaction, but "in connection with and as a part of the work of abolishing the crossings at grade on said railroad in Lynn, as provided by said report." The special commission in its report provided for the discontinuance of Silsbee street as a necessary incident of securing the track elevations over Central square. We are convinced, and the language of the statute above quoted seems to recognize the fact, that the relocation, instead of discontinuance, of Silsbee street therein provided for is in no less degree occasioned by and incidental to the proper performance of the work of abolishing the crossings at Central square, Union street and Exchange street. It is immaterial whether the Bay State Company had or had not a location in the portion of Silsbee street within the railroad location, if it had, as it did have, locations at Central square, Union street and Exchange street where the crossings

existed. These facts bring the Bay State Street Railway Company, formerly the Boston and Northern Street Railway Company, within the provisions of section 29, Part I, chapter 463 of the Acts of 1906, which provides that a street railway company having a location in the part of a public way where the crossing exists shall be made a party to the proceedings. We therefore rule as a matter of law that in apportioning the expense of the additional work of relocation and reconstruction of Silsbee street, required by chapter 492, section 14, of the Acts of 1912, the Commission may assess upon the Boston and Northern Street Railway Company, now the Bay State Street Railway Company, such percentage of the total actual cost as defined by section 34, Part I, chapter 463 of the Acts of 1906, not exceeding 15 per cent thereof, as is found just and equitable.

By agreement filed with this Commission September 9, 1915, between the Attorney-General for the Commonwealth and counsel for the Bay State Street Railway Company and the Boston and Northern Street Railway Company, it was stipulated that if the Commission in this proceeding finds that any part of the cost of relocation and reconstruction of Silsbee street may be apportioned upon the Bay State Street Railway Company, formerly the Boston and Northern Street Railway Company, the amount of  $7\frac{1}{2}$  per cent of the cost of said work shall be assessed upon said company as the proportionate cost to be apportioned to it.

It is therefore

*Ordered*, That the Commission hereby apportion of the total actual cost of relocating and reconstructing said Silsbee street, in accordance with section 14, chapter 492 of the Acts of 1912, apart from such cost as is therein imposed exclusively upon the Boston and Maine Railroad, sixty-five per cent to be paid by the Boston and Maine Railroad, ten per cent to be paid by the City of Lynn, seventeen and one-half per cent to be paid by the Commonwealth of Massachusetts and seven and one-half per cent to be paid by the Bay State Street Railway Company.

FREDERICK J. MACLEOD,  
EVERETT E. STONE,  
JOHN F. MEANEY,  
JOSEPH B. EASTMAN,  
CHARLES A. RUSSELL,

AUGUST 11, 1916.

[P. S. C. 876]

*Commissioners.*



## CERTIFICATE RELATIVE TO ABOLITION OF GRADE CROSSING.

*Petition of the selectmen of the town of Erving for certificate relative to abolition of grade crossing in that town.*

After notice and hearing and an examination of the proposed plan for abolishing the grade crossing of the tracks of the New London Northern railroad (Central Vermont Railway Company, lessee) and the main highway from Millers Falls to Northfield in the town of Erving, as set forth in the report of the special commission appointed by the Superior Court to consider the matter, and after consideration of the expenditure therein authorized, — it is

*Ordered*, That the Commission hereby certify that in its opinion the adoption of said plan and the incurring of such expenditure are consistent with the public interests and are reasonably required to secure a fair distribution between the different cities, towns and railroads of the commonwealth of the public money appropriated for the abolition of grade crossings, and that such expenditure will not in its judgment exceed the amount to be paid by the Commonwealth under the provisions of law relating thereto.

Attest:                      ANDREW A. HIGHLANDS,  
NOVEMBER 1, 1916.      [P. S. C. 1455]                      *Secretary.*

## ALTERATION OF CROSSINGS AND BRIDGES.

*Petition of the City Council of Boston and the West End Street Railway Company, by the Boston Elevated Railway Company, its attorney, under section 23 of part I of chapter 463 of the Acts of 1906 and acts in amendment thereof, relative to the alteration of the bridge by which Brookline avenue passes over the Boston and Albany railroad in the city of Boston.*

It appearing after public notice and hearing all parties interested that Brookline avenue in the city of Boston is a public way which crosses the tracks of the Boston and Albany railroad by an overhead bridge, and that it is necessary for the security and convenience of the public that an alteration be made in said bridge which does not involve the abolition of a crossing at grade, for the purpose of rebuilding the bridge and making certain structural changes for the purpose of strengthening and improving it, — it is therefore

*Certified*, That an alteration in said bridge is necessary, and that the manner and limits of such alteration are hereby prescribed as follows: —

1. The present superstructure, consisting of three pony trusses resting on masonry abutments and supporting the floor system of roadway and sidewalks, shall be entirely removed.

2. The present abutments shall remain unchanged except so far as is necessary to adapt them to the new superstructure to be constructed thereon.

3. Upon the present abutments there shall be constructed a through span, steel plate girder bridge, consisting of two main girders supporting floor system of roadway and sidewalks, together with an additional through plate girder on the westerly side of the bridge proper, supported as provided in paragraph 4, between which girder and the westerly sidewalk shall be a space for supporting pipes and conduits.

4. The pipes and conduits upon the present structure shall be removed and placed in the reserved space on the westerly side of the bridge or below the surface of the sidewalks, provided that the head room below specified is not diminished. A foundation shall be constructed to furnish a column support at each end of the additional westerly girder provided that the clear distance between such columns shall not be less than the existing clear distance between masonry.

5. The present clear height of fifteen (15) feet from the top of the rails of the railroad to the underside of the bridge is not to be diminished.

6. The clear roadway between curb lines of the bridge shall be changed to be forty (40) feet.

7. There are to be two sidewalks, each with a clear width of not less than seven (7) feet.

8. The grade of the roadway and the sidewalks is to remain substantially unchanged.

9. For the construction of the bridge as herein prescribed, and the relocation of pipes and conduits, two parcels of land shall be taken adjacent to the westerly side of Brookline avenue at its intersection with the northerly and southerly boundary lines respectively of the location of the Boston and Albany railroad and containing respectively about two hundred and nineteen (219) square feet and about one hundred and fifty-three (153) square feet as shown bounded in red upon the plan hereinafter referred to.

10. The work is to be executed substantially in accordance with a plan marked "Brookline avenue bridge," dated May 16, 1916, and signed by E. F. Murphy, Commissioner of Public Works, which is signed by and filed with the records of this Commission and is made a part of this decision. The bridge shall be designed in accordance with the specifications of the Public Service Commission for bridges carrying street railways.

FREDERICK J. MACLEOD,  
EVERETT E. STONE,  
JOHN F. MEANEY,  
JOSEPH B. EASTMAN,  
CHARLES A. RUSSELL,

JULY 11, 1916. [P. S. C. 1319]

Commissioners.

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*Petition of the directors of the Boston and Maine Railroad relative to the alteration of the crossing at Cambridge street and the tracks of the Boston and Maine and Boston and Albany railroads in the Charlestown District of Boston.*

This is a petition of the directors of the Boston and Maine Railroad, representing that the bridge which carries Cambridge street over the tracks of the Boston and Maine and Boston and Albany railroads in Charlestown in the city of Boston is in need of "alterations, repairs and improvements which do not involve the abolition of a crossing at grade," and asking the Commission, if it finds such alterations, repairs and improvements are necessary, to prescribe the manner and limits within which they shall be made.

The bridge, which is a steel structure, was built in 1900, pursuant to proceedings for the abolition of a grade crossing begun in 1892, upon petitions filed in the Superior Court for the County of Suffolk by parties interested. Upon the several petitions a special commission was appointed by the court. This commission filed its report March 29, 1899, and with certain minor changes made by legislative enactment (see Acts of 1899, chapter 421) the report was confirmed. The report apportioned the cost of abolition upon the railroads, the Commonwealth and the City of Boston, but contained no provision for the subsequent maintenance of the bridge. After the bridge was erected the Boston Elevated Railway Company laid a double track upon it, and in 1906 the railway company added to the floor beams of

the bridge certain stiffeners under the shelf angles which support the smaller stringers directly underneath its rails.

The petitioners represent that it is necessary to replace badly corroded plates and angle irons upon the floor beams and bottom chords of the trusses, to replace the corroded parts of the lateral bracing, and to restore, by patching, parts of the bridge locally corroded.

This petition is drawn in the language of section 23 of Part I, chapter 463 of the Acts of 1906, which as amended reads as follows: —

SECTION 23. If a public way and a railroad cross each other, and the board of aldermen of the city or the selectmen of the town in which the crossing is situated, or the directors of the railroad corporation, or the directors of a street railway company having tracks on the said way are of opinion that it is necessary for the security or convenience of the public that an alteration which does not involve the abolition of a crossing at grade should be made in the crossing, the approaches thereto, the location of the railroad or way, or in a bridge at the crossing, they shall apply to the county commissioners, or, if the crossing is situated, in whole or in part, in the city of Boston, to the board of railroad commissioners, who shall, after public notice, hear all parties interested, and, if they decide that such alteration is necessary, shall prescribe the manner and limits within which it shall be made, and shall forthwith certify their decision to the parties and to said board. This proceeding may include any case where there is need of the rebuilding of a highway bridge or any structural change or renewal for the purpose of strengthening or improving it. In case any street railway company is authorized to lay and use tracks upon the said way, the said company shall bear such part of the expense of building, rebuilding, changing, renewing, repairing or improving a bridge forming part of said way, or of altering or improving the approaches thereto, as shall be deemed to be just by the commission provided for in sections twenty-five and twenty-six. •

The only issue presented in this case is whether the work represented to be necessary constitutes an "alteration" which would bring it within the purview of the provisions of section 23, upon which this petition is based, or is "maintenance and repair," the duty of making which rests upon the railroads.

When an overhead bridge is erected pursuant to a decree of grade crossing abolition, unless said decree and report contains some stipulation to the contrary, the obligation of maintaining and repairing the framework and flooring of the bridge and its abutments is expressly imposed by statute upon the railroad company having a location beneath the bridge. Section 38 of



Part I, chapter 463 of the Acts of 1906, as amended, defines such obligation as follows: —

SECTION 38. After the completion of the work, the expense of maintenance and repair shall be paid as follows: if the public way crosses the railroad by an overhead bridge, the framework and flooring of the bridge and its abutments shall be maintained and kept in repair by the railroad corporation, but the approaches of the bridge and, if said flooring has a wearing surface, consisting of an upper planking, paving or other surface material, such wearing surface of the bridge shall be maintained and kept in repair by the city or town in which they are situated; if the public way passes under the railroad, the bridge and its abutments shall be maintained and kept in repair by the railroad corporation, and the public way and its approaches shall be maintained and kept in repair by the city or town in which they are situated; if several railroads cross a public way at or near a given point, the commission shall apportion and award in what manner and proportion each of said railroad corporations shall maintain and keep in repair the framework of the bridge and its abutments if the public way crosses the railroad by an overhead bridge, and the bridge and its abutments if the public way passes under said railroads.

Chapter 552 of the Acts of 1908 gives equity jurisdiction to the courts to enforce this obligation. If the work contemplated is "maintenance and repair" all expense must be borne by the railroad under section 38, and if an "alteration," under section 23, the Commission may so find, prescribe the changes and method of making them, and it is open to the parties later to apply, under sections 25 and 26 of the same chapter, for a special commission to apportion the cost.

The difference between "repairs" and "alterations" has been considered by our Supreme Judicial Court in *New York Central and Hudson River Railroad Company v. County Commissioners of Middlesex*, 220 Mass. 569. In that case the county commissioners ordered a street, which had been narrowed by railroad construction in 1847 at a point where the railroad passed under the street, to be restored to its original width, requiring the building of retaining walls and a sidewalk and the grading of the roadway. Among the grounds urged by the petitioners for a writ of certiorari to quash the proceedings was that the work was an alteration and not repairs, and that as a matter of law the railroad could not be required to bear the whole cost. On this phase of the question, the Court said: —

The question does not involve the distinction between general and specific repairs (see *Sullivan v. Fall River*, 144 Mass. 579), but between

“repairs,” under section 132, and an “alteration,” under section 134. The term “alteration” is used technically in the legislation upon the subject of highways as indicating a change of location in an intermediate section of an existing way, the establishment of a new section in substitution of a part of the old way. As was said in *Bigelow v. Worcester*, 169 Mass. 390, 393, “A technical alteration is the substitution of one way for another.” To the same effect see *Bliss v. Deerfield*, 13 Pick. 102, 106; *Gloucester v. County Commissioners*, 3 Met. 375, 379; *Goodwin v. Marblehead*, 1 Allen, 37; *Johnson v. Wyman*, 9 Gray, 186, 189. Without attempting to lay down a general definition of these words as used in the statute which would be applicable to all cases that may arise, we are of opinion that the work here ordered by the commissioners was not an “alteration.” It called for no change in the course or limits of the original location of Highland street. It prescribed repairs within the highway location that presumably were reasonably adapted to prevent an unnecessary interference with public travel over the crossing. *Selectmen of Westborough, Petitioner*, 169 Mass. 495.

The word “repair” has been defined by our courts to mean “not to make a thing new but to refit, make good, or restore an existing one,” and on the other hand “alteration” has been held to mean either changes in location of part of an existing way, or structural renewals of, substitutions for, or additions to, existing crossings, to improve them, to strengthen them or to extend their use. In the present case the form of order presented to the Commission by the petitioners sets forth as the purpose to be accomplished “that the bridge shall be brought to its original strength, to make good loss due to corrosion,” and testimony presented by the petitioners’ engineer, who made the plans for the proposed work, is summarized in his statement: “We are just figuring to restore it to its original strength” (Record, p. 20). Upon the evidence presented by the petitioners we find that the changes contemplated are made necessary by deterioration in the present structure, caused by corrosion due in some degree to climatic conditions, but in greater measure to the steam, smoke and gases incident to railroad operation beneath the bridge, and we further find that such necessary restoration constitutes “maintenance and repair,” as defined by the provisions of section 38, *supra*.

The further contention of the petitioners that, if this petition cannot be granted under the provisions of section 23, an order should be made under the provisions of chapter 542, Acts of 1908, cannot be sustained. Chapter 542, Acts of 1908, expressly amends section 23, the “alteration section,” so called, and, while

extending its scope, does not bring within its operation repairs necessary to maintenance. To issue an order under the terms of chapter 542 of the Acts of 1908 would be equivalent to issuing an order under authority of section 23, which it amends, and would be virtually a determination by this Commission that the changes petitioned for constituted an alteration.

The Commission finds that the work contemplated constitutes "maintenance and repair," and it is therefore

*Ordered*, That the petition be dismissed.

For the Commission,

ANDREW A. HIGHLANDS,  
AUGUST 10, 1916. [P. S. C. 1035] *Secretary.*

*Petition of the New York, New Haven and Hartford Railroad Company for approval of agreement for alteration of the crossing of county road and the railroad in the town of Grafton.*

It appearing, after notice and hearing, that the selectmen of the town of Grafton and the directors of the New York, New Haven and Hartford Railroad Company and the Providence and Worcester Railroad Company are of opinion that it is necessary for the security and convenience of the public that an alteration be made in the crossing in the town of Grafton where the county road passes over the Providence and Worcester railroad (New York, New Haven and Hartford Railroad Company, lessee); that they are agreed upon the character of the alteration to be made, and that an instrument in writing specifying the manner and limits within which said alteration shall be made, the party by whom the work shall be done, the general method of construction and apportionment of cost, has been duly executed by the chairman of the selectmen of Grafton, the president of the New York, New Haven and Hartford Railroad Company and the president of the Providence and Worcester Railroad, a copy of which agreement is as follows: —

AGREEMENT FOR THE ALTERATION OF HIGHWAY BRIDGE OVER THE RAILROAD OF THE PROVIDENCE AND WORCESTER RAILROAD COMPANY AT FISHERVILLE IN THE TOWN OF GRAFTON.

*Whereas* there is a certain highway in the town of Grafton known as the county road which crosses the railroad of the Providence and Worcester Railroad Company, leased to and operated by The New York,



New Haven and Hartford Railroad Company, at Fisherville in said town, by a bridge over the tracks of said railroads, and the directors of said railroad companies and the selectmen of said town are of the opinion that it is necessary for the security and convenience of the public that an alteration shall be made in said crossing by which said bridge shall be widened, and have agreed as to the alterations which shall be made;

*Now therefore* in pursuance of the provisions of the Acts of 1906, chapter 463, Part I, section 41, this agreement in writing is made and signed in behalf of said town by the chairman of selectmen thereunto duly authorized by the selectmen, and in behalf of the directors of said railroad companies by the presidents of said railroad companies thereunto duly authorized, respectively, by the directors, specifying the manner and limits within which the alterations shall be made, by whom the work shall be done, the general method of construction, and how the cost shall be borne.

#### *Alterations.*

Said bridge carrying the county road so called over the railroad at Fisherville shall be widened by the construction on the north side thereof of a sidewalk six feet in width, so constructed as to form a part of the present structure. The present housing on trusses shall be removed so far as consistent with good practice, so as to give a better view over and beyond the bridge on approaching the same.

The traveled way on the west side of said bridge shall be so widened as to afford a proper approach to the new six foot sidewalk, and a suitable fence shall be erected along the entire widening, including the bridge and westerly approach.

#### *Plan.*

The alterations hereinbefore described are shown on plan herewith and made a part hereof, entitled "N. Y. N. H. & H. R.R. Prov. Div. Worcester Branch Site plan of bridge No. 33.34 Fisherville, Mass., August 5, 1915."

#### *Performance of the Work.*

The New York, New Haven and Hartford Railroad Company shall furnish all the material and do all the work necessary upon the bridge itself, and the town of Grafton shall furnish all the material and do all the work necessary upon the westerly approach to the bridge, and also whatever may be necessary to provide a suitable approach on the easterly side.

#### *Apportionment of Expense.*

The town of Grafton shall pay the total cost of the alterations upon the westerly and easterly approaches, including grading and fencing, and The New York, New Haven and Hartford Railroad Company shall pay all the remainder of the expense, including work on the bridge, fencing thereon, the cost of any necessary hearings, and the expenses of the Public Service Commission and its necessary agents.



Signed in behalf of the selectmen by the chairman thereunto duly authorized, and in behalf of the boards of directors of the railroad companies by their presidents thereunto duly authorized.

SELECTMEN OF GRAFTON,

By FRANCIS PRESCOTT,  
*Chairman.*

THE NEW YORK, NEW HAVEN AND HARTFORD  
RAILROAD COMPANY,

By HOWARD ELLIOTT,  
*President.*

PROVIDENCE AND WORCESTER RAILROAD COM-  
PANY,

By WALTER F. ANGELL,  
*President.*

It is

*Ordered*, That the approval of the Commission be hereby given to the agreement and to the alteration therein set forth, as necessary for the convenience and security of the public.

Attest:           ANDREW A. HIGHLANDS,  
MAY 9, 1916.   [P. S. C. 1336]           *Secretary.*

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*Petition of the New York, New Haven and Hartford Railroad Company for approval of agreement for alteration in the crossing of highway and railroad in Wareham.*

It appearing, after notice and hearing, that the selectmen of the town of Wareham and the directors of the New York, New Haven and Hartford Railroad Company are of opinion that it is necessary for the security and convenience of the public that an alteration be made in the crossing and in the bridge at the crossing where the highway crosses the Old Colony railroad by a bridge over the tracks, being the first crossing south of the railroad station known as Tremont in said town of Wareham; that they are agreed upon the character of the alteration to be made, and that an instrument in writing specifying the manner and limits within which said alteration shall be made, the party by whom the work shall be done, the general method of construction and the apportionment of cost, has been duly executed by the chairman of the selectmen of Wareham, the president of the New York, New Haven and Hartford Railroad Company and

the president of the Old Colony Railroad Company, a copy of which agreement is as follows: —

AGREEMENT FOR ALTERATION OF CROSSING OF HIGHWAY AND RAILROAD OF THE OLD COLONY RAILROAD COMPANY IN THE TOWN OF WAREHAM.

*Whereas* there is a certain highway in the town of Wareham which crosses the railroad of the Old Colony Railroad Company, leased to and operated by The New York, New Haven and Hartford Railroad Company, by a bridge over said railroad tracks, being the first crossing south of the railroad station known as Tremont in said town, and the directors of said railroad companies and the selectmen of said town are of the opinion that it is necessary for the security and convenience of the public that an alteration be made in said crossing and in the bridge at said crossing, and have agreed to the alterations which shall be made;

*Now, therefore*, in pursuance of the provisions of the Acts of 1906, chapter 463, part I, section 41, and acts in amendment thereto, this agreement in writing is made and signed in behalf of said town by the chairman of selectmen thereunto duly authorized by the selectmen, and in behalf of said railroad companies by the presidents of said railroad companies thereunto duly authorized by the directors, specifying the manner and limits within which the alteration shall be made, by whom the work shall be done, the general method of construction, and how the cost shall be borne.

*Alterations.*

The direction of the bridge shall be altered so as to make an angle of approximately seventy-one (71) degrees between the center line of the bridge and the center line of the tracks of the railroad company. The bridge shall also be raised seventeen one-hundredths (0.17) of a foot. The graded surface of the highway shall be revised both as to line and grade properly to meet the bridge in its changed position. The bridge superstructure shall be reconstructed using the present girders and fence, the entire floor and lateral system to be new. The floor planking shall be of one layer of yellow pine resting on yellow pine stringers, which shall be painted with a good preservative coating.

*Plan.*

The alterations hereinbefore described are shown upon a plan herewith and made a part hereof, entitled "Plan and profile of proposed bridge over the N. Y. N. H. & H. R.R. in the town of Wareham Station 148 + 80 — 1907 layout Office of Massachusetts Highway Commission, Boston, Mass."

*Performance of the Work.*

The town of Wareham shall furnish all the materials and do all the work necessary to accomplish the above described alterations.

*Apportionment of Expense.*

The total cost of the alterations as aforesaid is to be paid by the town of Wareham.

Signed in behalf of the town of Wareham by the chairman of selectmen thereunto duly authorized, and in behalf of the railroad companies by their presidents thereunto duly authorized.

TOWN OF WAREHAM,

By LEWIS H. BULLARD,  
*Chairman of Selectmen.*

THE NEW YORK, NEW HAVEN AND HARTFORD  
RAILROAD COMPANY,

By HOWARD ELLIOTT,  
*President.*

OLD COLONY RAILROAD COMPANY,

By FAYETTE S. CURTIS,  
*President.*

A true copy.

[Signed] F. A. FARNHAM.

It is

*Ordered*, That the approval of the Commission be hereby given to the agreement and to the alterations therein set forth, as necessary for the convenience and security of the public.

Attest:           ANDREW A. HIGHLANDS,  
JULY 20, 1916.   [P. S. C. 1414]           *Secretary.*

EXPRESS — STREET RAILWAY.

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*Petition of the Boston Elevated Railway Company for modification of previous order of the Board of Railroad Commissioners relative to the carrying of baggage and freight in the city of Boston, and for modification of previous order of the Public Service Commission relative to the carrying of baggage and freight in the city of Cambridge.*

The Boston Elevated Railway Company has heretofore been granted authority to conduct the business of a common carrier of newspapers, baggage, express matter and freight in the city of Boston by an order of the Board of Railroad Commissioners dated December 30, 1911, and in the city of Cambridge by an order of the Public Service Commission dated December 23, 1913.

After notice and hearing, — it is

*Ordered,* That the Commission hereby certify that public necessity and convenience require that the Boston Elevated Railway Company act as a common carrier in the cities of Boston and Cambridge to the extent of receiving, carrying and delivering molasses in bulk between Copps Hill Wharf, so called, on Commercial street in the city of Boston and the distillery of the Purity Distilling Company on Cambridge street in the city of Cambridge, and that the orders of the Board of Railroad Commissioners and the Public Service Commission above referred to be hereby so far modified as to permit the carrying of molasses in bulk between said Copps Hill Wharf and said distillery of the Purity Distilling Company, and the schedules on file with said orders be amended by the insertion of the word "molasses" in said schedules.

This authority is granted subject to the following restrictions: —

1. The company shall operate cars containing molasses only between the hours of 8 P.M. and 12 P.M.
2. The company shall transport said molasses only in two car units, each unit consisting of a molasses tank car and a motor freight car, to be provided with proper fenders, brakes and safety



appliances and to be run at no time at a higher rate of speed than that at which the company operates passenger cars.

3. The exercise of the authority herein granted shall in no way alter or abridge the duties and obligations of the company relative to the transportation of passengers, nor in any way interfere with the conduct of the passenger service.

4. Except as provided herein, the company shall remain subject to any and all regulations and restrictions now effective in said grants or any of them and to such further regulations and restrictions as shall be lawfully made from time to time.

5. The authority herein granted is given upon the express condition that it shall not operate in any way to enhance the value of the assets of the company in the event of a purchase of the railway property by the municipality or the state.

By the Commission,

ANDREW A. HIGHLANDS,

MAY 2, 1916. [P. S. C. 1230]

Secretary.

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*Order in the matter of the use and operation of two-car surface trains in the transportation of freight on the Boston Elevated railway.*

It is

*Ordered,* That on account of the emergency created by the threatened strike of railroad employees the Boston Elevated Railway Company, as lessee of the West End street railway, is hereby authorized to use and operate during a period of thirty days beginning at the date hereof two-car surface trains in the transportation of freight over the lines of that company in the cities of Boston, Chelsea, Somerville, Cambridge, Malden and Everett and the town of Arlington.

It is

*Further ordered,* That in connection with the use of such two-car trains the Boston Elevated Railway Company is hereby authorized to operate as trailer cars during the period above stated such cars as shall be deemed to be safe and suitable for that purpose.

It is

*Further ordered,* That the foregoing orders shall be subject to such modification as the Commission in its discretion may deem necessary or desirable in the public interest, and shall not be

considered in any way as an adjudication of the petition of said company now pending before the Commission for the permanent use of such trains in the transportation of freight.

Attest: ALLAN BROOKS,  
AUGUST 31, 1916. [P. S. C. 1426] Assistant Secretary.

A similar order under date of August 31, 1916, was issued permitting the Bay State Street Railway Company to operate two-car surface trains in the transportation of freight over its lines in Boston and in other cities and towns north and south of Boston where said company has been granted permission to act as a common carrier of freight under the same conditions and modifications. [P. S. C. 1427]

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*Petition of Boston Elevated Railway Company for authority to use two-car. surface trains in the transportation of baggage, express matter and freight in the cities of Boston, Chelsea, Somerville, Cambridge, Malden and Everett and in the town of Arlington.*

*Petition of Bay State Street Railway Company for authority to use two-car surface trains in the transportation of baggage, express matter and freight in the city of Boston and various cities and towns in which it operates south of Boston.*

These petitions are similar and were heard and considered together. In each case, authority to act as a common carrier of newspapers, baggage, express matter and freight in the cities and towns mentioned in its petition has heretofore been granted to the company, either under the provisions of chapter 202 of the Acts of 1903 (as amended by chapter 441 of the Acts of 1904) or under chapter 402 of the Acts of 1907. This latter statute superseded the former and provides as follows: —

A street railway company may become a common carrier of newspapers, baggage, express matter and freight in such cases, upon such parts of its railway, and to such extent, in any city or town, as, after public notice and a hearing, upon the petition of any interested party, the board of aldermen or the selectmen in such city or town and the board of railroad commissioners shall by order approve. If the board of aldermen or selectmen to whom such a petition is presented act adversely thereon or fail to act within sixty days from the date of the filing of such petition the petitioner or any interested party may file such petition with the board of railroad commissioners, who shall after public notice and a hearing

determine whether public necessity and convenience require the granting of such petition and shall make an order dismissing such petition or requiring any street railway company named in such petition to act as such common carrier in such cases, upon such parts of its railway and to such extent, and under such regulations and restrictions, as in the opinion of said railroad commissioners public necessity and convenience require. Any street railway company acting under authority hereof shall be subject to such regulations and restrictions as may from time to time be made by the local authorities aforesaid, with the approval of the railroad commissioners, and shall also be subject to the provisions of all laws now or hereafter in force relating to common carriers so far as they shall be consistent herewith and with said regulations and restrictions. The authority conferred upon any street railway company by virtue of the provisions of this act may at any time be revoked or terminated in any city or town or upon any part of its railway, by the board of aldermen or selectmen with the approval of the board of railroad commissioners.

It will be noted that, under this statute, authority to act as a common carrier in any city or town may be granted in two ways: —

- (1) By the city or town, with the approval of this Commission.
- (2) In the case of adverse action or non-action upon the part of the city or town, by this Commission.

Under the prior statute of 1903 only the first of these two methods existed. It will also be noted that the right of the local authorities, subject to the approval of the Commission, to regulate and restrict the service furnished is made very clear. Not only may such regulations and restrictions be imposed at the time of the original grant, but they may also be imposed from time to time thereafter; and this continuing right the local authorities have, it seems, even where the original grant was made by the Commission.

The regulations and restrictions contemplated by the statute must be reasonable and presumably may relate to the manner, facilities and other conditions of operation by the company of its express and freight car service, as, for illustration, to such matters as the hours of service, the streets over which it is operated, the speed and number of cars making up the operating train unit and including also, it would seem, the local delivery and distribution of express and freight matter and the loading and unloading in the public streets of the cars so employed. It is further provided that the authority granted may at any time be revoked or terminated in any city or town by the local authorities, with the approval of the Commission.

In the case of the Boston Elevated Railway Company, authority to become a common carrier in the cities and towns mentioned in its petition was in each instance granted either by this Commission or by its predecessor, the board of railroad commissioners, after adverse action or non-action by the local authorities. In the case of the Bay State Street Railway Company, the authority was granted in this way in Boston and in a few of the other cities and towns mentioned in its petition, but, in general, its common carrier rights in the territory south of Boston have been granted directly by the local authorities. In the case of both companies, the terms of all grants, however made, have been carefully examined by the Commission and in no case does it appear that the right to become a common carrier of newspapers, baggage, express matter and freight is limited in such a way as to forbid the use of two-car trains in the service. In a few instances, the right to operate trains with more than two cars has been denied, but in no city or town within the scope of the petitions has the use of single trailer cars been prohibited.

While, therefore, the operation of the service in two-car trains may appear to represent a rather important and substantial change in the present method of transportation of express and freight matter by street railway companies, the authority to operate two-car trains in the freight and express service, which the companies seek to obtain under the pending petitions, is, in the judgment of the Commission, an authority they already possess under existing grants. As matters now stand and in the territory in question, the companies have, we believe, quite as much right to use freight trailer cars as they have to use passenger trailer cars. This right, however, is subject to public control and may be modified, or even terminated, in any city or town at any time by the local authorities, with the approval of this Commission. And, indeed, all local grants as approved and all orders of original grant by the Commission have been made, it is believed, expressly subject to such reasonable rules and regulations as may be prescribed from time to time by the local authorities with such approval.

It follows that action upon the pending petitions is unnecessary. While, however, we have been brought to this conclusion after careful consideration of the law and of the circumstances, it is only fair to the companies and to the cities and towns that the Commission should at this time, now that the question has



been raised, indicate its general attitude toward the use by street railway companies of two-car trains in freight and express service. The general policy of the Commonwealth in relation to the transportation of express and freight matter by street railway companies has been declared by the successive statutes above cited and this Commission is charged with the duty of giving it effect. Street railway companies are organized primarily for the purpose of transporting passengers upon the public streets and highways and the proper performance of this service is their first and principal duty. Their tracks, power plants and other property, however, are used to capacity in the passenger service, if at all, only at certain hours of the day and at other times are used very little. Other things being equal, if this property can be used at such times for the carriage of express and freight, the advantage is obvious. The companies gain through the enhanced revenues which they receive; the public gains, directly, through the additional service provided and, indirectly, through the increased prosperity of the companies. In order that the companies may be in the best possible position to furnish first-class passenger service at rates favorable to the public, it is of the utmost importance that they should utilize every opportunity to secure additional income from other sources. For these reasons the Commission believes that the development of trolley freight and express service ought to be encouraged.

In saying this, however, the Commission realizes that there are dangers incident to the development of this service and that care must be exercised to avoid these dangers. Under no circumstances should the new service be permitted to encroach upon or interfere in any way with the proper conduct of the passenger business. Furthermore, public safety and convenience must be safeguarded in other respects. The locations of a street railway company are very different from the private right of way of a steam railroad company. The public streets are not adapted to any large scale development of trolley freight service and cannot, with propriety, be converted into freight yards. Any express or freight business carried on by a street railway company must clearly be subordinated, not only to its own passenger traffic, but to the traffic for which the public ways were primarily designed and to the public safety and convenience in general.

At the present time, however, these dangers are, in the judgment of the Commission, comparatively remote. The year

ended June 30, 1916, was a banner year in the trolley freight and express business. Yet the Bay State company received from this source but \$426,996 out of operating revenues amounting in all to \$9,770,609, while the Boston Elevated company received but \$82,835 out of a total revenue of \$18,686,972. Traffic of this, or even a materially greater, volume can be handled by the companies, we believe, without public detriment and in such a manner that the advantages will outweigh the disadvantages. And, in any event, the local authorities and this Commission, as the law now stands, have complete control of the situation and can at any time impose such restrictions or take such steps to curtail or limit the service as may seem necessary or desirable in the public interest. So far as the immediate question of trailer cars is concerned, if these cars are properly constructed and operated the Commission is of the opinion that an equal volume of traffic can be handled with less public inconvenience and discomfort in two-car trains than in single cars.

With this expression of views and for the reasons above stated the pending petitions are placed on file.

By the Commission,

ANDREW A. HIGHLANDS,

NOVEMBER 6, 1916.

[P. S. C. 1426, 1427]

Secretary.

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*Petition of the Bay State Street Railway Company for authority to act as a common carrier of baggage and freight over sections of railway in Fall River.*

The petitioner has obtained from the board of aldermen of Fall River, by an order dated July 17, 1916, authority to conduct the business of a common carrier of newspapers, baggage, express matter and freight over sections of railway in Rodman street and Brayton avenue, in Hanover street between Prospect street and New Boston road and in North Main street in the city of Fall River.

After notice and hearing, — it is

*Ordered,* That the Commission hereby certify that public necessity and convenience require that the Bay State Street Railway Company act as a common carrier upon the sections of its railway in the city of Fall River named in the order of the board of aldermen granting said authority, to the extent of receiving, carrying and delivering, in suitable cars to be provided

with proper fenders, brakes and safety appliances, from time to time required under the provisions of general laws now or hereafter in force, such baggage and freight, described in the schedule on file with the petition of the Old Colony Street Railway Company (now the Bay State Street Railway Company) for the right to act as a common carrier in Fall River, approved by the Board of Railroad Commissioners on December 14, 1907, as is usually transported by express companies, restricted to exclude besides explosives all articles and commodities the transportation of which may be hereafter prohibited by the Commission, upon the understanding that the facilities by which and the manner in which the business is conducted shall be subject to supervision and regulation by the Commission from time to time as the public interests may require.

Attest:                   ANDREW A. HIGHLANDS,  
AUGUST 24, 1916.      [P. S. C. 1449]                   *Secretary.*

## INVESTIGATIONS.

*Petition of The Perry, Buxton, Doane Company relative to contracts for sale of scrap iron by the Boston and Maine Railroad and the New York, New Haven and Hartford Railroad Company.*

*Memorandum.*

This is a petition alleging that contracts for the sale of scrap, entered into by the Boston and Maine Railroad and the New York, New Haven and Hartford Railroad Company, are improvident and praying "that, as a matter of public policy, the railroads should not be allowed to make such contracts inasmuch as they do not bring to the railroads the revenue that they should." A public hearing was held on November 30, 1915.

It appears that the two companies in question have in the past, and until very recently, disposed of a large portion of their scrap iron and steel to a concern known as the Joseph Joseph & Brothers Company upon a yearly contract basis. Under these contracts, the items to be sold have been grouped in some 23 classes and the prices to be paid have been based upon prices quoted the first of each month, f. o. b. cars New York City, in the "Iron Age." In some cases the contract has specified the exact quotations for the material in question; in others, the prices have been based upon quotations for somewhat similar material, plus or minus a certain differential. These contracts have, as a rule, been let by both companies to the Joseph Joseph & Brothers Company without competition. Last year, and again this year, the Boston and Maine Railroad asked other concerns to submit proposals; but no other company was willing to bind itself, to use the words of one of them, "to purchase scrap material based on market quotations which might or might not represent the true value of the material."

The Joseph Joseph & Brothers Company is a Cincinnati concern, doing business from coast to coast and having offices in several large cities. It is one of the largest scrap iron companies in the country. The complainant in the case, The Perry, Buxton, Doane Company, is the largest scrap iron concern in New England.



The complaint was received by the Commission on October 27, 1915. At that time both the railroad companies had contracts with the Joseph Joseph & Brothers Company expiring at the close of the calendar year and were about to consider the making of new contracts for the year 1916. Upon request, they agreed to defer this matter until the Commission had had a reasonable opportunity to pass upon the merits of the complaint. Under the contracts for the 1915 year, Joseph Joseph & Brothers Company paid \$420,511.85 to the New York, New Haven and Hartford Railroad Company and \$303,112.15 to the Boston and Maine Railroad.

The question was raised at the public hearing, and it is of primary importance, whether the Commission has any jurisdiction over such matters. In other words, has the Commission any authority to compel a common carrier to alter methods of management which have only an indirect relation to the performance of its public service. No provision in the statutes seems to confer any such power, unless it be section 23 of the Public Service Commission Act (St. 1913, c. 784), the first sentence of which reads as follows:—

Whenever the commission shall be of opinion, after a hearing had upon its own motion or upon complaint, that the regulations, practices, equipment, appliances or service of any common carrier, now or hereafter subject to its jurisdiction, are unjust, unreasonable, unsafe, improper or inadequate, the commission shall determine the just, reasonable, safe, adequate and proper regulations and practices, thereafter to be in force and to be observed, and the equipment, appliances and service thereafter to be used and shall fix and prescribe the same by order to be served upon every common carrier to be bound thereby.

It may be argued that the word “practices” in this provision of the laws is broad enough to cover such matters as the sale or purchase of materials. If this be so, it must be evident that it is broad enough to cover every other phase of management, including the selection of officers, the hiring of employees, the fixing of salaries and wages, etc. In the judgment of the Commission, no such meaning could have been intended. The context indicates with reasonable certainty that the “practices” which the Legislature had in mind were merely those practices which directly affect the service furnished to the public. Any other interpretation would place in the hands of the Commission complete authority over the management of the companies, a responsibility which it is loath to assume and which it would be

wholly improper for it to assume without positive and explicit mandate from the General Court.

Jurisdiction to investigate, however, is a different thing from jurisdiction to compel changes. While it is reasonably clear that the Commission does not possess the latter jurisdiction, so far as the matter at issue is concerned, it is equally clear that it does possess the former. Such jurisdiction is clearly contemplated by section 13 of Part I of chapter 463 of the Acts of 1906, which requires "every railroad corporation or street railway company," upon request, "to furnish to the board any information which may be required by it relative to the condition, *management*, and operation of the railroad or railway." The Commission is also of the opinion that questions of management, such as the one raised by the pending complaint, may properly be investigated, not only in connection with rate or service cases, but independently of such proceedings.

The complainant urges that the railroad companies in question could secure better results by discarding the yearly contract system and selling their scrap iron and steel by the open bid method. This latter method may be illustrated by the practice of the Boston and Albany Railroad Company. A report of the monthly accumulation of scrap is made by each department to the purchasing agent, on or about the fifth of each month, on a form prescribed for the purpose and providing for a detailed classification of the material. The quantity of each class of scrap which the purchasing agent desires to sell is then noted on a form which is sent to a large list of possible purchasers, who are invited to bid on or before a specified date. After the bids are received, the prices are tabulated and the award in the case of each class of material goes to the highest bidder, from whom shipping directions are then asked. Upon receipt of these directions an order is drawn on the department reporting the material for sale, and it is weighed and loaded and the car number, weight and amount of money involved are wired to the purchasing agent. The latter sends this information to the purchaser with a request for payment. Upon remittance, the material is released and forwarded to destination. It is sold f. o. b. any point on the road that the customer may specify.

By this method the complainant claims that a railroad is certain to receive maximum prices for its scrap material, whereas, under the yearly contract arrangement, prices are based upon New York quotations which may not be as high as prevailing prices at other points. New York, it is stated, is not a consum-

ing point and prices are there made by dealers who resell to consumers. At consuming points prices are often relatively higher and the open bid method makes it possible to sell, not only to dealers, but direct to consumers in any part of the country. It is also argued that the classification under the yearly contract arrangement is meager and insufficient and disadvantageous to the railroad.

At the public hearing it was stated in behalf of the New York, New Haven and Hartford Railroad Company that, while not convinced that the yearly contract arrangement is disadvantageous, the company had decided not to renew the contract but to try the open bid method for a season, so that the relative merits of the two systems might be clearly determined by actual experience. Counsel for the Boston and Maine Railroad, however, stated that his company believed in the contract arrangement and desired to continue it. It seems that in 1914 a committee made up of four officials of the road reported unanimously in favor of the yearly contract system. Stress seems to have been laid upon the advantage of an assured market, a financially responsible buyer, and the saving in clerical and other incidental labor.

The presumption, it seems to the Commission, is naturally in favor of the open competitive bid method and this presumption is strengthened by the fact that it is the method of selling scrap very generally followed by the railroads of the country. Inquiries addressed to certain important railroad systems, selected at random, proved that they all use the open bid method. The systems were the following: —

- Philadelphia and Reading Railroad Company.
- Delaware, Lackawanna and Western Railroad Company.
- Baltimore and Ohio Railroad Company.
- Illinois Central Railroad Company.
- Pennsylvania Railroad Company.
- Maine Central Railroad Company.

The Commission also has knowledge that the New York Central Lines use this system.

To make a more positive test, the chief accountant of the Commission, Mr. Lester, was directed to ascertain the actual prices received for the various classes of scrap material by the New York, New Haven and Hartford Railroad Company, the Boston and Maine Railroad and the Boston and Albany Railroad Company for a period of approximately two years. Mr. Lester's

report has been made a part of the record of the case. He found it difficult to make a precise comparison of prices, since the classification used by the Boston and Albany is considerably more detailed and accurate than the classification used by the other two companies. A further difficulty is the fact that the prices obtained by the Boston and Albany are f. o. b. cars on line of road, the material to be delivered at any point the purchaser may specify, whereas the prices reported by the other two companies are f. o. b. cars at shipping point. The Boston and Albany prices, therefore, represent the total amounts received by that company for its material, whereas in the case of the other roads there should be added, for purposes of comparison, the freight receipts where the material was shipped beyond the loading point. Making all due allowances, however, the comparison seems to favor the Boston and Albany.

After the figures were obtained, the Boston and Maine Railroad called attention to the fact that the prices which it had received were those in effect at the first of each month and argued that, if these prices were checked against the prices received by the Boston and Albany on competitive bids, which do not close until the twentieth and twenty-fifth of the month, the comparison would be unfair to the Boston and Maine in case of a rising market. Mr. Lester, therefore, prepared another comparative statement showing the prices received by the Boston and Albany in one month compared with those received by the Boston and Maine in the succeeding month. To quote from his report: "Even under these conditions the prices quoted by the Boston and Albany are in excess of those quoted by the Boston and Maine."

Mr. Lester made a further study of the prices received by certain street railway companies for scrap material sold during the same period, securing figures from the Boston Elevated Railway Company, the Bay State Street Railway Company, the Worcester Consolidated Street Railway Company and the Springfield Street Railway Company. It appears that the Bay State company has, in the past, disposed of its scrap iron and steel through The Perry, Buxton, Doane Company under an agreement that this company would pay prices based on monthly quotations in the "American Metal Market," and would take the scrap "as and where it lies." The other street railway companies have used the open competitive bid method. The comparison prepared by Mr. Lester showed, on the whole, to the disadvantage of the Bay State company and that company, after



examining the data, has now adopted the open bid method and will, in the future, accumulate the metal at some central point or points where it can be carefully and properly classified.

The following is a paragraph from the closing page of Mr. Lester's report: —

It would appear from the above facts that a very large majority of the representative railroads and railways, whose methods relative to the disposition of scrap have been investigated, seem to adhere to the open bid method and it would also appear as if the roads that have adopted this method have everything to gain and nothing to lose, as they do not rely upon the prices obtained from any one source and it is more than possible that local conditions might be a very important factor in disposing of certain kinds of scrap.

Summing the matter up, while the investigation made by the Commission does not show beyond all reasonable doubt that the yearly contract method is disadvantageous to the railroads, it gives ample warrant for this conclusion. We are of the opinion that all railroad and street railway companies, operating in the Commonwealth, should adopt the open competitive bid method for the disposal of scrap, unless, in any instance, a company is prepared to show upon the basis of actual experience that better results can be secured under the yearly contract basis.

JUNE 23, 1916.      Attest:      [P. S. C. 1182]

ALLAN BROOKS,  
*Assistant Secretary.*

A copy of the above memorandum was sent on July 6, 1916, to all operating railroad and street railway companies in the Commonwealth. [P. S. C. 1049-I]

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*Investigation by the Commission relative to passenger train service on the New York, New Haven and Hartford railroad.*

On August 16, 1916, the Commission received from its inspection department the following report in regard to the passenger train service rendered within the Commonwealth by the New York, New Haven and Hartford Railroad Company:

*Public Service Commission, Hon. FREDERICK J. MACLEOD, Chairman.*

GENTLEMEN: — The investigation made by this Department of complaints concerning passenger train service on the New York, New Haven and Hartford railroad shows conditions which I desire to call to your

attention for consideration and such action thereon as you may deem advisable.

The passenger train service rendered by this company in Massachusetts is far from being reasonable or satisfactory. While the Department has succeeded in adjusting complaints for the time being, the work has been no more than first aid and, therefore, the results obtained have been very unsatisfactory to all parties in interest. A remedy for this unfortunate situation requires more radical treatment than this Department has a right to demand. The cause of the present trouble is apparently the outcome of a policy of too extreme economy adopted by the present management in attempting to meet unsatisfactory financial conditions created by a recent former management of this company. This policy has resulted in unwarranted hardships to the citizens of this Commonwealth dependent on the New York, New Haven and Hartford railroad for transportation facilities.

In order to relieve this undesirable situation, a large expenditure for additions and improvements on this property will necessarily be required. If it is the intention of the company to render to the traveling public a reasonable passenger service, it appears to be necessary that the small type of engine should be replaced by a larger type capable of performing the service required. In addition to this replacement, the company is in urgent need of a large number of additional modern engines to enable it to render a satisfactory service. It must also provide necessary facilities for the proper maintenance of its motive power.

An examination of the reports of engine failures submitted by the company for December, 1915, and January and February, 1916, shows a total of 2,407 failures; of this number 842 are charged to poor coal and the balance are of a miscellaneous character. Of the 842 charged to poor coal, 503 occurred on the smaller type of engines.

This report does not include engines engaged in passenger train service between Boston, Springfield, Pittsfield and New York, these being usually of large type, reasonably cared for and supplied with a good quality of coal; but is confined to engines in use in local passenger train service within this commonwealth. The company is over-burdened with old, light weight passenger engines, which may well be classified as "fair weather" engines. They may not be considered unsafe for use, but may be classified as unsuitable and unprofitable for the present service. They usually make a fair run with a few cars when supplied with a good quality of coal and when weather conditions are favorable, but have no reserve power for emergencies which arise from time to time in the operation of the railroad. They are frequently the cause of the late arrival of their own trains, as well as of trains following, and of trains waiting at meeting points.

The investigation made by this Department shows that approximately 252 locomotives are engaged in what may be termed local passenger train service in Massachusetts, which have been in such service in this commonwealth for a period ranging from 13 to 36 years. Sixty-four are of a

large type that will, when properly maintained and supplied with good fuel, give good service. One hundred and eighty-eight are of the small type, and, under the conditions imposed upon them, are unable to render good service.

The New York, New Haven and Hartford Railroad Company operates about 1,000 cars in local passenger train service in this commonwealth, all of which are of the wooden type. Of this number about 500 are in good condition. About 250 of the total number should be put in good condition. The remaining 250 have been in service from 29 to 40 years, and are in generally poor condition. Recently the company retired 25 of these cars and, following a joint inspection made by a member of this Department and a representative of the railroad company, I have the assurance of the management that 169 more "will be taken from and kept out of passenger train service."

The beginning of the electrification of the New York, New Haven and Hartford railroad was most commendable in its management. It was, however, begun, not in Boston, but in New York City. The electrification has now reached New Haven, and whenever the work is resumed it will probably be extended from that point. If the supposition proves true, it will without doubt be many years before the portion of this system located in Massachusetts will be operated by electricity. If the experience of the past is a safe basis on which to judge the future, I predict that the old wooden passenger cars and steam locomotives will, from time to time, be forced from the electric zones until they finally reach Boston, where, if allowed to remain, they will be repaired and patched indefinitely.

The company is short of suitable passenger train equipment. Therefore, the train schedules are made with many short turns which often result in late departure of trains, caused by waiting for engines, cars and train crews which arrive behind their schedule time. The company should provide for such emergencies by having in readiness spare equipment and crews at stations of such importance as the South Terminal, to fill in a train whenever it is found that a regular train will be unreasonably late in its departure.

During the rush of freight business last winter, many of the heavier passenger engines were transferred to freight service and their places filled with light weight engines. This transfer resulted in numerous passenger train delays, of which just complaint was made. Following a recent conference between this Department and representatives of the railroad, about 20 of the heavier passenger engines were returned for the summer passenger business on the Cape.

It is the desire of the management to leave these engines in passenger train service in that territory, but, owing to the shortage of engines, no such assurance is definitely made by the officials of the company.

Respectfully submitted,

GEO. W. BISHOP,

*Chief of Inspection Department.*

AUGUST 16, 1916.

A copy of this report was sent to the company with the statement that the conditions disclosed were such that the Commission deemed it necessary to set the matter down for a public hearing, trusting that the company would be prepared at that time to discuss "ways and means of improving the service which is now being furnished."

At this hearing, which was held on October 17, 1916, the company was represented by its president, Howard Elliott, and by several of its operating officers. No attempt was made to controvert the general statements of fact contained in the report of the inspection department. Indeed, Mr. Elliott frankly admitted that "the service is not what we, as railroad men of long experience, would like to give; it is not what the public is entitled to and not what we hope, one of these days, the New Haven road will be able to give to all of its patrons, not only in Massachusetts but everywhere else." Extenuating circumstances were urged and the claim was made, in effect, that the company has done, is doing or is about to do all that can reasonably be expected for the improvement of conditions.

The evidence shows that the delays, which have been so noticeable in the intrastate passenger train service, have been largely due to the following causes: —

(1) Within the past two years the company, in its endeavor to reduce operating expense and improve its financial condition, has discontinued a number of passenger trains. This fact, together with the growth of traffic, has increased the tonnage of the remaining trains so that the old type of light-weight engines, many of which are still in use, are unequal to the task imposed upon them when weather conditions are unfavorable.

(2) The great and comparatively sudden increase in freight traffic, beginning with the fall of 1914, has congested the tracks and interfered with the passenger traffic. At times, also, the company has found it necessary to withdraw heavy engines from the passenger service and use them temporarily in the freight service.

(3) The great increase in industrial activity during this period, together with the disturbance in water transportation conditions caused by the European war, has made it difficult to secure an adequate supply of good coal.

(4) The unusual storms in the winter of 1915-16 created conditions adverse to prompt train movement.

(5) The heavy increase in the parcel post business, which is largely handled by passenger trains, and the like increase in the



express business has made station delays, due to the loading and unloading of parcels, very frequent.

In commenting upon the situation, the company points to the fact that, while the passenger service which it is now furnishing is not all that might be desired, the chief cause for complaint arose during the early part of the year. It states that steps have been taken which make it unlikely that the service will be equally unsatisfactory in the winter season which is now approaching. The claim is made that many minor improvements have been made in side tracks, yard tracks and small terminals which will be helpful; that there is likely to be less freight congestion, owing to the experience gained in past months of heavy traffic, both by the company and by shippers and receivers of freight; that it is unlikely that the winter storms will be as severe as they were a year ago; that steps have been taken, so far as possible, to provide for express traffic by special trains; that 80 new engines of the most powerful type have been introduced on the system; that 27 additional large engines have been assigned to the passenger service in this locality, or seven more than the number which was withdrawn to meet the needs of the freight traffic last winter; and that it is most unlikely that conditions will arise which will make it necessary to withdraw these engines again during the coming winter.

The company further states that it contemplates, within the comparatively near future, purchasing 65 steam locomotives of powerful type and 60 electric engines. The latter will be used in the electric zone between New York and New Haven, while the former will be used on the through lines between New Haven and Boston. This new equipment, when secured, will release for use on the lines of lighter traffic about 200 engines superior in type to those now in service upon such lines. In the three divisions terminating in Boston this change, it is estimated, will increase the average tractive power per locomotive, as follows:—

	1916.	1917-18 (Estimated).
Boston Division, . . . . .	22,925 pounds	27,030 pounds
Midland Division, . . . . .	22,378 pounds	25,792 pounds
Old Colony Division, . . . . .	19,297 pounds	26,213 pounds

No assurances were given as to when this new equipment will be secured, but it was stated that detailed specifications are now

being prepared in the hope that the orders may be placed within the "very near future." Doubt as to the exact time arises from the uncertainty attendant upon the construction of heavier bridges, which will be necessary to permit the use of much of the new motive power, from like uncertainty as to financial conditions and from the difficulty of deciding upon the proper type of electric engines to be used.

Throughout his discussion of the situation, the president of the company laid continual stress upon the financial troubles which have fallen to the lot of the New York, New Haven and Hartford Railroad Company during the past few years, upon the injury to its credit caused by governmental investigations and conflict of state jurisdictions, and upon the need of largely increased revenues. He suggested that the time has now come "for Massachusetts and its Commission to take a lead in a constructive and upbuilding policy to all railroads and to help put them in first-class condition in the interest of New England, which sadly needs better transportation, as well as in the interest of the unfortunate stockholders." He stated that the "quickest and simplest way to obtain more revenue throughout New England is to permit an increase in the passenger rates," and that "2 $\frac{3}{4}$  cents a mile for local fares and 2 $\frac{1}{2}$  cents a mile for mileage fares would increase earnings for the New England roads several million dollars a year, which sum could at once be used for improving the passenger train service, of which this Commission is now complaining." He further declared that "if you and the other commissions of the New England states should see fit to get together and even give temporary increases in rates, with the understanding that these increases should be used for betterments and improvements, it would seem to me to be a statesmanlike thing to do, and would give encouragement."

These suggestions and expressions of opinion were extraneous to the issue. It is the duty of a common carrier to furnish reasonable and adequate service. If, in performing this duty, it finds that larger revenues are necessary in order that a fair return may be paid upon honest and prudent investment, it is its privilege and right to seek an increase in rates. But the New York, New Haven and Hartford Railroad Company has not filed with this Commission, nor with any other commission so far as we are aware, notice of any proposed increase in rates and, until it does, the question of earnings is not in issue. Yet, while this is so and while the Commission has no disposition unneces-

sarily to revive old controversies, so much publicity was given to the remarks of the president of the company at the public hearing with reference to the finances and revenues of the company, and to his suggestion of possible increases in fares, that it is desirable that certain observations should be made.

As the Commission has pointed out on former occasions, the New York, New Haven and Hartford Railroad Company is really a composite of two companies; it is a *railroad* company and it is a holding company. In the first capacity, it owns, operates and receives revenue from a railroad system; in the second capacity, it holds and receives income from the securities of other companies. Using the company's own figures, and separating, roughly, the railroad investment and earnings from the holding company investment and earnings, the results for the past six fiscal years have been as follows: —

*Railroad Company.*

YEAR.	Investment.	Net Income.	Per Cent Return.
1911, . . . . .	\$220,703,446 71	\$13,731,433 40	6.221
1912, . . . . .	221,721,656 03	14,896,757 68	6.718
1913, . . . . .	215,312,479 60	12,324,182 57	5.723
1914, . . . . .	212,297,830 40	8,441,260 69	3.976
1915, . . . . .	205,013,801 64	11,571,983 96	5.644
1916, . . . . .	209,947,961 82	13,032,156 12	6.207

*Holding Company.*

1911, . . . . .	\$249,818,379 57	\$8,164,003 08	3.267
1912, . . . . .	251,726,153 00	8,833,610 17	3.509
1913, . . . . .	227,927,442 47	7,512,070 48	3.295
1914, . . . . .	220,768,904 91	3,697,030 29	1.674
1915, . . . . .	227,404,024 15	2,030,479 22	0.893
1916, . . . . .	222,328,111 58	2,841,796 69	1.278

These figures are, if anything, unduly favorable to the holding company operations, since the railroad investment has been charged with all the cash and current assets and the full burden of all tax payments has been thrown against it, although the holding company investment was responsible for a certain share. They indicate, what has been amply demonstrated in the recent

public investigations, that the financial troubles of the New Haven company have been chiefly due to the investment of huge amounts of capital at wasteful prices in the securities of other companies. In other words, the holding company, rather than the railroad, operations have been to blame. Last year the earnings from the railroad system, it appears, amounted to 6.2 per cent upon the entire capital invested, including funds borrowed at low rates of interest as well as proceeds from the sale of capital stock.

Such a showing is not one of which a railroad corporation can with justice make serious complaint. Nor is this all that may be said. The gross earnings of the company last year were the largest in its history, but much of the increase in gross was absorbed by the added expense incidental to unfavorable weather conditions and to the lack of proper facilities for handling the business. The president has himself said that with improved facilities the showing would have been much better. (Record, p. 33.) The situation is well described in a report submitted on September 26th last by a committee of the board of directors as follows (Record, pp. 18-19): —

The committee is convinced that to continue operations with the present plant and equipment of the company means an increase in cost of operation with every increase in business offered to the company. The character of the company's business has changed materially during the past fifteen years, and while the company has spent and authorized large sums for improving the operating conditions, it is essential, in the opinion of the committee, that the company proceed at once to put the facilities of the company for conducting its business in the most modern, economic and efficient condition possible. Only by so doing can the company hope to meet successfully the increasing demands of the growing business in New England and ultimately earn dividends for the stockholders.

It needs no further evidence to prove that the present railroad plant is relatively inefficient and inadequate and the ratio of operating expense consequently high. Yet, with this inefficient and inadequate plant, more than 6 per cent was earned last year upon the entire capital invested in the railroad, as distinguished from the holding company, property. With proper facilities a larger return would undoubtedly have been earned. Furthermore, for the lack of facilities the patrons of the road cannot be held responsible. The earnings in the past of the railroad system proper, while some years have been better than others, have been



amply sufficient to support the credit necessary to place the road in first-class operating condition. If the capital alone which was wasted on the Westchester railway and the Rhode Island trolleys had been used for legitimate railroad purposes, it would not now be necessary to lament the absence of adequate facilities.

Confronted by this situation what has been the attitude of the public? It might be gathered from the statements made on behalf of the company, that there has been nothing but criticism and lack of sympathetic and helpful co-operation in the work of rehabilitation. The fact is quite the reverse. With little protest the people of New England have submitted to very material increases in freight rates and passenger fares. They have suffered their passenger service to be reduced. They have allowed the program for the abolition of grade crossings to be postponed. They have suppressed their desire for electrification, for the rapid introduction of steel equipment, and for other modern improvements calling for the expenditure of large capital sums. With patience they have tolerated inferior facilities and inferior service. The three New England states in which this railroad operates have all readjusted their statutes so that obstacles in the way of its financing might be removed. The Commonwealth of Massachusetts, in particular, has validated the entire capitalization of the company, much of which had been issued contrary both to the spirit and letter of its laws, and has authorized the permanent funding of its entire floating indebtedness regardless of the purposes for which it was incurred.

These facts are entitled to consideration from both the management and the stockholders of the New Haven company. While the Commission appreciates the difficulties under which the present management has labored and by which it is still beset, and the sincerity of its purposes, the situation, in our judgment, now calls for somewhat more self-reliance and optimism than have been manifested and for less insistence upon obstacles in the way and the need for public help. The railroad system of the New York, New Haven and Hartford Railroad Company is advantageously located in one of the most thickly populated sections of the country and seems to be earning a reasonably satisfactory return, even with present inefficient facilities. The patrons of the road are fairly entitled to good modern service and, while they ought to pay an adequate price for what they receive, it cannot in justice be claimed that they are under any obligation to make additional contributions merely

for the sake of relieving the company from the burden of its own unfortunate security investments. The laws of the states in which the company operates are now reasonably uniform and impose no serious obstacles in the way of the financing of the railroad, as distinguished from the holding company, property. If, because of the injury inflicted by the past mismanagement, common stock cannot be issued for this purpose, the way is open for the issue of various classes of preferred stock or bonds.

Coming back, then, to the question more immediately at issue: As above stated, it is admitted that the passenger service afforded by the New Haven company within the commonwealth is not what it should be. Its rolling stock, upon the whole, is not modern and train delays are frequent. While conditions in this respect were particularly bad during the early months of the year, they are still open to just criticism. Within the past few weeks many serious complaints have been made to the Commission, and conditions, since the opening of the present winter season, show little improvement over those prevailing under similar weather conditions during the past winter. On the other hand, the company claims that plans which it is soon to carry into effect will afford substantial relief.

In the matter of car equipment, some progress, as shown by the report of the inspection department, has been made. Following a joint inspection by representatives of this department and of the railroad, an agreement was reached that 169 of the older passenger cars used on local trains within Massachusetts would be removed from service; and the Commission is advised that action in accordance with this understanding has been taken. Obviously these cars should be immediately replaced, so far as necessary to meet reasonable requirements of traffic, by cars of a more modern type. The inspection department will continue to give this matter attention and has been directed to report to the Commission, from time to time, if it finds that still other cars have reached the end of their reasonable usefulness or that the remaining equipment is not being properly repaired or maintained. The Commission realizes that the company cannot be expected to modernize its entire passenger car equipment at once and that latitude may reasonably be allowed in effecting the process gradually, provided the cars which continue in service are maintained in good operating condition.

Of more pressing importance is the question of train delays. The annoyance, embarrassment and actual loss to the community

from this source is very great. It is reasonable to expect that a well-managed railroad will, in general, run its trains on time in accordance with its advertised schedule and that only those delays will normally be suffered which are a necessary incident to cautious and safe operation. At present, the New Haven company is falling well below this standard, and the chief outstanding cause seems to be the lack of adequate motive power. If the report of the inspection department is correct, and it has not been called in question by the company, 188 of the passenger engines used within the commonwealth are unable, under the conditions imposed upon them, to render good service. In the judgment of the Commission it is imperative that this state of affairs should be remedied with all possible expedition. Making all due allowance for the financial difficulties with which the company has been beset, the community has a clear right to demand such action and it is, indeed, in the company's own interest. It is also important that attention should be paid to the question of station delays incident to the express and parcel post business and that every effort should be made to handle this business in such a way that these delays, which are now very frequent, may be minimized.

It remains to determine whether the exercise by the Commission of any of the mandatory powers conferred upon it by the statutes is necessary or advisable at the present time. Upon consideration, the Commission is of the opinion that the situation may properly be left, for the time being, in the hands of the company. As above stated, the management has frankly admitted the unsatisfactory character of the service which is now being furnished and has declared its intention of proceeding as rapidly as possible with the plans which it has inaugurated or is about to inaugurate for the improvement of conditions. It is fair that it should have a reasonable opportunity to translate its intentions into action. Under the circumstances, therefore, the Commission has deemed it advisable to postpone for the moment the final disposition of the case and to keep it under advisement, requiring the company, however, to file a monthly schedule of the passenger train delays upon all its divisions within Massachusetts, accompanied by a statement of the reasons therefor, and also a statement showing the status of its plans for the introduction of improved engine and car equipment. An order to this effect has, therefore, been entered. If at any time it appears that reasonable progress is not being made, or that

conditions in other respects call for further action, such additional orders will be entered as seem necessary in the public interest. While it is true that the times are not favorable to speedy action, for labor is scarce, prices are high and the delivery of materials unreliable, there is much that the company can and ought to do forthwith. It can, for example, convert its present tentative and somewhat uncertain plans into a definite and comprehensive program of action to be initiated at once; it can avoid further delay in placing its orders for new motive power and equipment; it can give evidence of a somewhat more vigorous oversight over the movement of its passenger trains than has hitherto seemed to exist. By what it does the future course of the Commission will be governed.

After notice and hearing and further consideration, — it is

*Ordered*, That the New York, New Haven and Hartford Railroad Company, until otherwise ordered, file with the Commission as soon as possible after the end of each calendar month beginning with the month of December, 1916, a statement showing in detail each delay of five or more minutes in passenger trains upon all its divisions within the commonwealth, together with the reasons therefor, and also a statement showing the status of its plans for the improvement of its passenger service within the commonwealth.

By the Commission,

ANDREW A. HIGHLANDS,

DECEMBER 26, 1916.

[P. S. C. 1531]

*Secretary.*

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#### RAILROAD ACCIDENTS.

*Investigation of accident on the Boston and Maine railroad in Holden, February 16, 1916.*

MARCH 27, 1916.

*Public Service Commission, Hon. FREDERICK J. MACLEOD, Chairman.*

GENTLEMEN: — I beg to submit the following report concerning a collision of trains which occurred on the Central Massachusetts line of the Boston and Maine railroad about 500 feet west of Jefferson passenger station at 7.30 P.M., Wednesday, February 16, 1916: —

On this date, passenger train 555, composed of an engine, combination car and one passenger coach, departed from the North Station, Boston, at 5.41 P.M. for Northampton. It left



Jefferson station at 7.30 P.M., and when about 500 feet west of that point, met extra engine 2319, which was running light from Rutland to Oakdale. The section of railroad between Oakdale and Rutland is single track unprotected by signals, and involves heavy grades and sharp curves. It was most fortunate for all concerned that neither train was running at a greater speed than six or seven miles per hour at the time of the collision.

Train 555 was a regular passenger train and the train crew operating it was in no way responsible for the accident. Engine 2319 was being used to assist freight trains from Oakdale to Rutland, returning light to Oakdale. On the day of this accident this engine helped a freight train from Oakdale to Rutland and on its arrival there was detached from the train for the return trip. The crew of this engine consisted of an engineer, firemen and a brakeman. The engineer received orders, No. 252 (Form 19), as follows: — "Engine 2319 run extra Rutland to Oakdale." The engineer, on receiving this order should have been governed by operating rule 204-A: —

Passenger conductors will show train orders to their baggage masters and brakemen, and freight conductors to the flagmen and when practical to their brakemen, and engineers to their firemen, and see that they read and understand them.

He read the order to the fireman and brakeman, and in place of ascertaining their understanding of it, remarked, "We have a clear track for Oakdale and will get there at 7.45." Then, without the examination of the time table to learn of opposing trains, they accepted this misleading information and the trio commenced a journey which might have been their last run, if not the last ride for the passengers and members of the crew on train 555. They had forgotten train 555 and were only reminded of it when the collision occurred.

The management of the Boston and Maine Railroad placed the responsibility of this accident on the engineer in charge of engine 2319, and gave him a certain number of demerit marks and continued him in service. This engineer had been in locomotive service about 14 years, serving as fireman ten years and as engineer four years. The management stated that his previous record has been good. The fireman of this engine had been in the service about two and one-half years. The brakeman had been in service about two weeks.

In consequence of a recommendation made by the Commission with reference to the manning of freight trains, a brakeman was

assigned to engine 2319. The position of brakeman accompanying light engines, as well as that of rear brakeman, is too important to be filled by inexperienced men. The results obtained from the investigation of this accident show the assignment of a man with no more than two weeks' experience in train service to the position of brakeman on engine 2319. On such a section of track as that where this collision occurred, every precaution possible should have been taken to insure the safe operation of these trains. The management of the Boston and Maine Railroad must assume the responsibility for the operation of trains on that system. It is clearly its duty to avoid the assignment of men to positions which they are not qualified to occupy. It is also its duty to maintain a system of supervision and discipline which will result in reasonably safe operation of trains. The assignment of the brakeman referred to, together with the apparent indifference shown by the three men on this engine with respect to the safety of persons riding on opposing trains, as well as to their own safety, is convincing to my mind that a lack of supervision on the part of the management contributed to this accident. This condition should be remedied.

Respectfully submitted,

GEORGE W. BISHOP,

[P. S. C. 1079]

*Chief of Inspection Department.*

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*Investigation of accident on Boston and Maine railroad in Worcester, June 5, 1916.*

JULY 3, 1916.

*Public Service Commission, Hon. FREDERICK J. MACLEOD, Chairman.*

GENTLEMEN: — I beg to submit the following report concerning a collision which occurred on the Worcester and Hillsboro branch of the Worcester, Nashua and Portland division of the Boston and Maine railroad between Barbers and North Worcester stations at 3.36 P.M., on Monday, June 5th, 1916.

On this date passenger train No. 613, composed of engine No. 996, baggage car, combination, passenger coach and milk car, departed from Union station, Worcester, for Elmwood, N. H., and when about one-half a mile north of Barbers station, while passing around a five degree curve and on an ascending grade of about one per cent, came in collision with extra work train No.

1448, which was running from Brooks station to Worcester. The line from Worcester to Barbers is double track. The section of the railroad between Barbers and Brooks stations is single track, unprotected by signals, and involves heavy grades and many curves.

Train No. 613 was a regular schedule passenger train and the train crew operating it was in no way responsible for the accident.

Extra work train No. 1448 was being operated under special orders which did not give it rights over first-class trains. These orders were read and understood by all of the train crew. This train, consisting of engine No. 1448, caboose car and eleven empty cinder cars, all equipped with air brakes and said to be in good working order, left Brooks at 2.50 P.M. bound for Worcester. The train crew consisted of a conductor, engineer, fireman and two brakemen. The conductor of this train had been in railroad service sixteen years. About five years of this time was on the Maine Central railroad and the remainder on the Boston and Maine railroad. The engineer had been in railroad service about eleven years, having been promoted from the position of fireman to that of engineer in 1911 and rated as spare engineer. The fireman had been in service about six months. One brakeman had been in train service on the Central Vermont railway and entered the service of the Boston and Maine railroad early in January, 1916. The other brakeman had been in train service on the New York, New Haven and Hartford railroad and entered the service of the Boston and Maine railroad on December 19, 1915.

It appears that on the day of this accident the crew of train No. 1448 was instructed to take a train of cinders from Worcester to Brooks, where they were to be unloaded and return to Worcester with the empty cars. The work at Brooks having been completed, arrangements were considered by the conductor and engineer for the return trip to Worcester. It was found at that time that the work train had thirty-seven minutes running time to reach Barbers previous to the departure of train No. 613 from that point. The distance being about ten miles, the run under normal conditions could be made in twenty minutes, leaving seventeen minutes clearance at Barbers, where the extra train would pass onto second track, and probably if no difficulty had been encountered in the operation of the train the collision would not have occurred. However, the unexpected did happen. The train parted two or three times during the journey. The antici-

pated clearance time having been consumed on account of delays and the entire crew having forgotten train No. 613, the work train journeyed on, trespassing on the time of the regular train and later came in collision with it.

This accident was undoubtedly the outcome of the premeditated arrangements made at Brooks station before the departure of the work train for Worcester. The management of the Boston and Maine railroad places the responsibility for this accident on the conductor and engineer of work train No. 1448, having given them a certain number of demerit marks and continuing them in service.

This accident is similar to one which occurred on the Central Massachusetts line of the Boston and Maine railroad near Jefferson station on February 16, 1916, which was the subject of a special report by this department to the Commission. It is regrettable that this collision did not serve as an object lesson to all concerned in the operation of trains on this railroad and that under similar conditions it should have been repeated on June 5, 1916. These accidents were caused by the failure of the human agency. The crews of the extra trains in both instances forgot the regular schedule passenger trains with which they collided. Such accidents are preventable, therefore inexcusable. The public is entitled to a reasonably safe method of transportation. It is the duty of this company to operate its trains in a way that will result in reducing to a minimum accidents on the Boston and Maine railroad system.

Respectfully submitted,

GEORGE W. BISHOP,

*Chief of Inspection Department.*

[P. S. C. 1079]

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*Investigation of accident in yard of the Boston Terminal Company  
in Boston, February 25, 1916.*

MARCH 9, 1916.

*Public Service Commission, Hon. F. J. MACLEOD, Chairman.*

GENTLEMEN: — I beg to submit the following report on an accident which occurred on the property of the Boston Terminal Company at 9.55 A.M. on the 25th day of February, 1916, when New York, New Haven and Hartford passenger train 5094, consisting of a locomotive and five cars, collided with light engine



1027 of said company which was standing in the Terminal yard just south of train shed between signal bridges Nos. 1 and 5 at No. 49 switch:

Engine 1027 had been relieved of the cars which made up train 34, running between New York and Boston, known as the "Postal" and was attempting to make a journey from the train shed to South Boston engine house. On reaching a point known as switch 49, and while waiting for signals for Y. S. track allowing it to proceed, the engine was struck by train 5094. The weather conditions at the time were bad, as a heavy fog prevailed, and as this train had signals denoting a clear track, there was no warning of its approach until the collision occurred. Fortunately, this accident did not result in fatalities, but owing to the fact that many of the passengers, nearing their journey's end, were standing in the aisles and on the platforms of the cars, several persons were more or less injured.

All the signals and switches governing the movement of trains involved in this accident are operated from the tower from which all train movements on the property of this company are directed. To facilitate the movements of trains, the tracks are divided into short sections and the positions of signals and switches are shown by indicators in the tower.

The indicators showing the conditions existing on tracks 27 and 28 were in plain view of the director. The indicator showing the conditions existing in section 49, occupied by engine 1027, was located in front of the leverman and was not visible to the director. The leverman, on receiving the order from the director to set up this route, repeated the order to the director before executing the same.

I find that the director had apparently forgotten the presence of engine 1027 at switch No. 49 when he gave the leverman the route for train 5094, and as a result the collision followed.

There is no rule of the company requiring levermen to observe indicators representing the tracks and signals involved in the various movements of trains before repeating or executing the orders of the directors. If there had been such a rule in force, probably this accident would not have occurred.

To guard against a recurrence of this or similar accidents, I recommend that while the present location of indicators prevails in this tower, the management of the Boston Terminal Company require that the leverman who receives an order from the director to set up a route shall, before repeating or executing the same,

observe the indicators located on the machine which denote specifically the position of the signals and switches involved in such order.

The director in charge of the so-called "East Side," which includes the territory involved in this accident, has been engaged in this or a similar kind of work for a period of 43 years, and has been employed in this tower as director for 17 years. His orders were executed by a leverman who had been engaged as such in this tower for 17 years.

I am informed by the management of the Boston Terminal Company that this accident is the first in which either one of them has been involved. I am further informed that the director who is held responsible for this accident will be disciplined by the management, but that owing to his previous excellent record his services will be retained.

Respectfully submitted,

GEORGE W. BISHOP,  
*Chief of Inspection Department.*

[P. S. C. 1079]

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*Investigation of accident on the New York, New Haven and Hartford railroad in Norwood, February 25, 1916.*

MARCH 9, 1916.

*Public Service Commission, Hon. FREDERICK J. MACLEOD, Chairman.*

GENTLEMEN: — I beg to submit the following report on an accident which occurred on the Midland division of the New York, New Haven and Hartford railroad near Norwood Central station at 7.50 A.M., February 25, 1916, when freight train 136, east bound, collided with extra freight train 217, west bound: —

Train 217 left Readville for Franklin on the morning of the accident at 7.00 o'clock, doing the work of a local freight. When it arrived at Norwood Central it crossed from track No. 1 to track No. 2 under the protection of the interlocking plant located at Norwood Junction and proceeded east on track No. 2 about 2,410 feet to a switch leading to the company's freight yard. At this point the train entered the yard, clearing the main line track, and began the switching of cars. During the progress of this work the crew found it necessary to use main line track No. 2 for the purpose of placing cars on a certain side track. The conductor directed the crew to make this train movement

and said that he would flag the main line track for its protection. With this assurance, a member of the crew threw the main line switch and proceeded to make this movement, and while on the main line this collision occurred.

The conductor of train extra 217, having assumed the responsibility of providing protection, went through the yard to track No. 2 just east of Norwood Central station, a distance of about 950 feet west of the main line switch being used. He stated that he remained there about three or four minutes when he heard a train coming. The fog was very thick and he probably could not have seen the approaching train more than 100 feet away. He claims to have waved a red flag, but the engineer apparently did not see him, and as the engine passed he shouted to the engineer.

It is the claim of the engineer of train 136 that he found the distant signal and the home signal west of Norwood Junction and the home signal east of Norwood Junction in a clear position and the permissive signal which is located just east of Norwood Central station to be in a proceed position; that he saw nothing of the conductor or any flag, torpedo or fusee, but when about three or four car lengths from the point of collision he saw a brakeman running toward him giving the stop motion. He then made an emergency application of the brakes, but was not able to avoid the collision.

The statement of the engineer substantially coincides with that of the fireman and head brakeman of this train, who were upon the engine at the time.

The conductor of train 217, having for the time being assumed the position of flagman, should have provided himself with a red flag, torpedoes and fusees and should have proceeded on track No. 2 a sufficient distance to have insured the safe operation of his train. Under the conditions existing at that time, the use of the red flag, without the use of torpedoes or fusees, was insufficient for the purpose. This conductor has been in railroad service for about 19 years, and has served as conductor for the past 13 years, and I am informed by the management of the railroad that previous to this accident his record has been good. It is difficult to understand why a man with his knowledge of train operation should have, under conditions existing at that time, allowed himself to adopt such inexcusable methods as those used by him, which resulted in a collision of trains and an impairment of his previous good record.

The investigation of this accident shows a condition of signals in the vicinity of Norwood Central station that should be remedied at once. The switch where the accident occurred should be connected with the signal system in such a manner that it would not be possible for the next signal in the rear of the switch to give a clear indication when the switch is open. This signal should also be provided with a proper distant signal.

I recommend that the management of the New York, New Haven and Hartford Railroad Company, on or before April 15, 1916, submit to the Public Service Commission for its consideration and approval, plans for changing the signal conditions now existing in the vicinity of Norwood Central station to conform with above suggestions.

Respectfully submitted,

GEORGE W. BISHOP,

[P. S. C. 1079]

*Chief of Inspection Department.*

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#### STREET RAILWAY ACCIDENTS.

*Investigation of derailment of car on the Boston Elevated railway in Waverley, April 10, 1916.*

MAY 1, 1916.

*Public Service Commission, Hon. FREDERICK J. MACLEOD, Chairman.*

GENTLEMEN: — I beg to submit the following report relative to the derailment of car 4216 on the Boston Elevated Railway in Trapelo road, Waverley, in the town of Belmont, Mass., about 12.54 A.M. on April 10, 1916: —

This car was of the articulated type composed of two double truck box cars connected by a center compartment. This car left Harvard Square subway on time at 12.38 A.M., for Waverley. After descending a long grade, of approximately six per cent, and passing over a nearly level section of track for about 1,000 feet, it arrived at a point between Walnut and Beech streets, the beginning of a curve with a radius of about 961 feet. The track at this point curved to the left. The car had passed the point of the curve about 70 feet when the derailment occurred. The forward portion of the car curved abruptly to the right, crossing the street line to adjoining land, overturned and suddenly came to a stop. This resulted in a "snap-whip" movement. The rear car body, with its forward end torn from its forward trucks and with its rear trucks derailed, travelled 280 feet within the street



limits from the point of derailment. The car was badly damaged. There were six passengers and two employees on the car when the accident occurred.

It was most fortunate for all concerned that this derailment did not result in loss of life and more serious personal injuries. Car 4216 went into service on February 4, 1916, and had run a total of 7,343 miles since that time. Following the accident the remains of this car were inspected by this department. The trucks were found in good condition and no defects were discovered which in any way contributed to the accident.

The section of track concerned in this accident was constructed in 1898 with a 9-inch girder rail of tram head design and without a guard rail. The road bed is paved with granite blocks. The track is badly worn and the surface and alignment poor. The track in the vicinity of the accident was found to be from one-half to one inch wide gauge. The outer rail on the curve where the derailment took place was one inch lower than the opposite rail on the inside of the curve. The head of the rail was so badly worn that the tread of the wheel did not rest firmly on the rail, therefore the load was partially carried by the flange of the wheel resting on the inner portion of the tram head type of rail. I am informed by the management of the Boston Elevated Railway Company that the track was constructed with the outer rail of this curve lower than the inner rail to conform with the requirements of the municipality.

The following may be found on page lvii of the annual report of the Commission for 1916: —

Locations for street railways are first obtained from the officials of the cities and towns in which the company proposes to construct and operate, or in the case of locations on state highways from the State Highway Commission. These location grants contain varying conditions and regulations and from the beginning of street railroading have necessitated the abandonment of the uniformity so much to be desired in conducting an enterprise of this kind. Companies have too frequently, for the purpose of avoiding opposition in securing locations, agreed to build on locations which involved heavy grades with sharp curves, action always detrimental to safe operation. The management of a street railway is often placed at a disadvantage in not being able to properly elevate the curves to avoid danger in operation, or excessive wear of track and equipment and the overhead system.

The conditions referred to therein are too frequently contributing causes toward street railway accidents. The management

of street railways should vigorously oppose any conditions which may interfere with the observance of the slogan "Safety First."

I am informed that the track at and near the place of this accident was temporarily repaired during the year 1914. At that time, this section of track had been in service about sixteen years and was nearing the end of its usefulness. There is no question in my mind but that the expenditure for reconstruction, rather than for repairs, would have been justified and if carried into effect this accident would not have occurred. The management of this company, having decided to repair rather than to reconstruct this section of track, should have fixed a rate of speed at which cars could have been operated over it with a reasonable degree of safety.

The conductor of the car stated that at the time of the accident he was making out his day card and therefore could not estimate the rate of speed at which the car was running. The motor man conceded that he might have been operating his car at a rate of sixteen miles per hour. The results following the derailment would, to my mind, indicate a rate of speed greatly in excess of his estimate; but be that as it may, I am of the opinion that even sixteen miles per hour is an excessive rate of speed to operate cars over track having such unfavorable conditions as were found in the vicinity of this accident.

Following the accident, the company promptly reconstructed this track with a guard rail and elevated the outer rail of the curve one and one-half inches above the inner rail. It is regrettable that this work had not been done at an earlier date.

From the evidence secured by this department during the investigation of the accident, I am convinced that it should be classified as preventable and inexcusable. It is clearly the duty of the Boston Elevated Railway Company to properly maintain its road bed and track and fix the rate of speed for the operation of its cars to conform to the varying conditions existing on this street railway; this should be followed by a system of supervision and discipline which may reasonably be expected to prevent a recurrence of this or similar accidents.

Respectfully submitted,

GEORGE W. BISHOP,  
*Chief of Inspection Department.*

*Investigation by the Commission in the matter of the Fort Point Channel accident which occurred on the Boston Elevated railway in the city of Boston.*

The Commission has received the following report from its inspection department in regard to the serious accident which occurred on one of the surface lines of the Boston Elevated Railway Company at Fort Point Channel in Boston on the evening of November 7, 1916: —

NOVEMBER 14, 1916.

*Public Service Commission, Hon. FREDERICK J. MACLEOD, Chairman.*

GENTLEMEN: — I beg to submit the following report concerning an accident which recently occurred on one of the surface lines of the Boston Elevated railway:

On November 7, 1916, double truck box car No. 393, controlled by hand brakes and having a seating capacity for 34 passengers, left P street barn, North Point, South Boston, at about 5.13 P.M., via L street and Summer street extension for Summer and Washington streets, Boston. This car stopped at several points en route to receive and leave passengers and nothing unusual in its operation was observed until it was nearing Fort Point Channel, when the motorman in charge suddenly discovered that the warning gates were across the street and the drawbridge open. He claims to have immediately applied the brakes and reversed the current, but the car was so close to the gates, which were only 25 feet from the opening, that it crashed through the gates, plunged into Fort Point Channel and was at once submerged in water. The motorman jumped to the street and was saved. He had been in the service six months. He estimated the speed of the car at the gates to have been eight miles per hour, while a passenger standing on the front right hand step at the time estimated it to have been 15 miles. This person stated that he fell as he jumped from the car to the street, but soon recovered himself and assisted in rescuing a man from the water.

When the car approached the bridge it was supposed to have had about 60 passengers on board. Several jumped from the car as it was about to take its fatal leap. Others were rescued later. As near as I am able to ascertain at this time, 45 passengers lost their lives.

I was seasonably notified and at once proceeded to the place of accident. On my arrival, I was gratified to find Inspector L. H. McLain already there and that the investigation on the part of the Commission had begun. This work has been carried forward with all possible dispatch.

Many conflicting statements concerning the accident, undoubtedly made in good faith, have reached this department. The results obtained from the investigation of such statements have, in many instances, been helpful, while others have proven unsatisfactory. This department has interviewed the conductor and motorman of the ill-fated car, as well as

surviving passengers and persons who were near the scene of the accident when it occurred, and has secured all available information concerning it. The Boston Elevated Railway Company and the Bridge Department of the City of Boston have freely given all information requested concerning the operation of the railway and the drawbridge.

After car No. 393 had been raised from the channel, all of its parts were thoroughly examined by Assistant Inspector Philip Scott. The following is an extract from his report concerning the condition of the car:

After a careful inspection of control, trucks, sand boxes and brake rigging, I am of the opinion that the car was in good working condition up to the time of the accident, and that all damages to the car and equipment occurred as the car went over the draw.

He also found that this car received a regular inspection on October 31, 1916; that the brakes were adjusted during the afternoon of November 7th and that this accident occurred on the first trip thereafter. I am unable to learn from any source that the brakes were not in proper working condition. There is sufficient evidence to show that they were working and that the car skidded.

The condition of the track approaching the draw opening was, soon after the accident, found to be favorable for the safe operation of cars. The track on the bridge and for a distance of 200 feet easterly of it is a tangent and nearly level.

A stop sign, about 17 inches long and  $4\frac{1}{2}$  inches wide, with letters 2 by 3 inches, suspended to a span wire 20 feet above the rail, is located easterly 175 feet from the gates and 200 feet from the draw opening. This sign is governed by the following rule, No. 132, page 65, of the Rules and Regulations for Conductors and Motormen, Boston Elevated Railway Company (Surface Lines):

132. "*Stop before crossing*" signs. (a) Safety stops have been established at parkways and certain street crossings, and are designated by a sign requiring car to come to a full stop before proceeding.

(b) Where such stops have been established, bring car to a full stop and only proceed upon receiving two bells from the conductor if the way is clear.

(c) Stop should always be made so that the fender is not over crosswalk.

I am informed by the management of the company that this sign was installed at this point for the purpose of bringing all cars to a full stop before reaching the drawbridge. I am of the opinion that to have served this purpose effectively a much more conspicuous sign, visible both by day and by night, should have been located not more than 100 feet from the draw opening.

The motorman states that he did not make the stop on this run, that he only slowed down sufficiently for a man to board the car and proceeded without receiving two bells from the conductor. This failure to stop was a violation of the rules, the observation of which might have prevented the catastrophe.



The statement of the conductor, who had been in the service of the company sixteen months, shows that he was in the car collecting fares from the time he left the Edison Electric Light Company's power plant on L street until the car reached the bridge and he did not notice anything unusual in its operation previous to striking the gates, when he reached the rear door and jumped. He landed on the street so near the opening that he lost his balance and was compelled to dive into the water, from which he was later rescued. He was apparently unable to fix the rate of speed of the car or to state definitely whether or not the car made a stop at the stop sign near Melcher street.

A street arc light is located about 25 feet easterly from the draw opening in the bridge, between the tracks and nearly opposite the gates. This light, if kept burning at night, is of great assistance to the motorman in determining the position of the draw portion of the bridge. The motorman in charge of the car claims that this light was not burning at the time of the accident. His statement is substantiated by a passenger on the car, as well as by a person riding in an automobile, who arrived immediately after. There is further evidence that later in the evening the light went off and came on again.

I am informed that the Fort Point Channel drawbridge is maintained and operated by the City of Boston. I find the gates placed across the street near the scene of the accident to be 25 feet from the opening. I am unable to learn of any good reason why they should not have been placed two or three times that distance to give persons using the street earlier warning when approaching danger. Such warning would have been valuable to the motorman operating car No. 393 on the evening of this accident. I have caused measurements concerning the placing of gates at other drawbridges to be made, the results of which appear in the following table:

	Inbound.	Outbound.
Dorchester avenue draw, . . . . .	About 40 feet.	About 50 feet.
Broadway extension, . . . . .	About 34 feet.	About 34 feet.
Dover street draw, . . . . .	About 23 feet.	About 23 feet.
New Charlestown draw, . . . . .	About 48 feet.	About 48 feet.
Old Charlestown draw, . . . . .	About 69 feet.	About 25 feet.

You will note from the above tabulation a lack of uniformity, which is so much to be desired.

I find that the red lantern used on the gates at the place of this disaster is attached to the right hand gate but on the side towards the channel, so that its light is somewhat obscured by the iron-work of the gate as one approaches. I am of the opinion that a better practice would be to provide two lanterns for these gates, the additional one to be placed over the street railway tracks and both to be hung on the side of the gates toward

which persons are approaching rather than on the channel side. The motorman claims not to have seen the red light. The man in charge of the draw says it was in place at the time of the accident. A person who arrived on the scene at about the time the car went into the channel feels positive that it was on the gate, while passengers on the car, who jumped off at this point, are equally positive it was not there at the time. So far as the motorman is concerned, I believe that it may have been possible that the lantern was in its designated place and his vision so obscured by teams that he might not have seen it.

A great deal might be written concerning this accident which would serve no good purpose. I have therefore endeavored to escape theories and embody in this report only such information as this department believes to be a statement of facts and which will assist in the adoption of such changes as may reasonably be expected to prevent a recurrence of this or similar accidents.

The seriousness and magnitude of this accident are such as to call for co-operation, due consideration and prompt action by all persons directly or indirectly responsible for the maintenance and operation of drawbridges and of street railway cars operated over them. Several suggestions calculated to prevent a repetition of this accident have reached this department, none of which is of recent origin. I will call attention to four of them.

1. *A reduction of the speed of cars approaching drawbridges.* — This method leaves the matter to the judgment of the motormen and conductors to estimate the rate of speed at which a car is moving, the results of which often prove unsatisfactory.

2. *The installation of automatic electric signals.* — This method is both practicable and feasible. However, to be effectual they must be connected with the drawbridge in a manner that will require the signals to be set in danger position before the draw is opened and remain in that position until the draw is closed. This requires the approval of municipalities and creates a joint responsibility in the maintenance and operation not altogether desirable.

3. *The installation of derails.* — This method is possible but, in my opinion, most undesirable in public ways. To make a derail effective it must be connected with the drawbridge and the signal to protect the derail must be placed a proper distance from it. This combination should be so connected that to open the draw the signal must first be set at danger, when the derail may be set in position to throw a car from the track. After this the draw may be opened. A reverse movement of draw, derails and signals will clear the track for traffic. I consider the derailing of a car in a public street dangerous. There is no assurance of the direction the car will move or the results it will produce. It is just as liable to do one thing as another. It may overturn; it may go upon the sidewalk; it may collide with pedestrians or teams using the street at the same time; and in any of these events something serious is liable to happen.

4. *The installation of positive stops.* — This method may have some objections, but it is free from the complications mentioned in Nos. 2 and 3. The management of street railways may install positive stops along its lines whenever in its opinion public safety requires it. It is always safe to stop a car provided it is properly protected while at rest.

I have given Nos. 1, 2, 3 and 4 and other methods careful consideration. I am of the opinion that the fourth is preferable and with proper supervision and discipline on the part of the management is reasonably safe. It may be put into operation at once and without great expense.

I therefore recommend that every street railway company in this commonwealth operating cars or trains over drawbridges on surface lines shall at once install positive stops not more than 100 feet nor less than 50 feet from each draw opening to protect traffic going in either direction, and shall erect at each stopping place a stop sign visible both by day and by night, the type of sign and rules governing its use to be approved by the Commission.

I submit this report for your information and such action as you deem advisable.

Respectfully submitted,

GEORGE W. BISHOP,  
*Chief of Inspection Department.*

The suggestions in the above report in regard to the location and illumination of highway gates used in the protection of drawbridge openings relate to matters over which this Commission has no jurisdiction, for such gates are operated and maintained by the municipal authorities. We have been informed, however, that the subject has already received the attention of the City of Boston and that steps for the improvement of existing conditions are in contemplation. It is greatly to be hoped that equally prompt and effective consideration may be given to the subject by the other municipalities in the Commonwealth having drawbridges under their control.

With the recommendation made by the department in regard to street railway operation the Commission is more directly concerned. For many years the law has required street railway cars to make positive stops at steam railroad grade crossings, and the statute imposes a penalty upon any motorman or company violating its provisions (St. 1906, c. 463, Pt. III, § 82). In the case of drawbridge openings no similar statute requires such a practice, nor, with certain exceptions, does it appear that it has been voluntarily adopted by the companies themselves. The rule of the Boston Elevated Railway Company in regard to safety stops, quoted above by the inspection department, makes no mention of drawbridges. While, in the case under considera-



tion, it happened that such a stop had been established at an intersecting street about 200 feet from the drawbridge opening, no similar stop had been established upon the other side of the opening. Furthermore, the stop sign was not well located nor particularly conspicuous and there is little evidence that the company has ever attempted any effective enforcement of the rule in question.

While a uniform rule that positive stops be established wherever drawbridges are located would to some extent interfere with the expeditious operation of cars, the Commission is convinced that considerations of safety, far outweigh any embarrassment which the companies or the public might suffer from this cause and that the recommendation made by the inspection department ought, as a necessary measure of immediate precaution, to be adopted. It has therefore issued an order to this effect which is hereto attached.

No such order, however, will accomplish the results desired unless the positive stop rule is rigorously enforced by the companies through adequate penalties for the infraction of this rule by employees of the company.

It has frequently been suggested that some mechanical means should be adopted for bringing cars automatically to a stop at drawbridge openings, so that safe operation may not depend entirely upon the human element. The inspection department, however, after careful consideration of this question is unable at the present time to recommend to the Commission any such device for use in surface car operation whose advantages seem clearly to outweigh its disadvantages. Many such devices, however, are in process of development, and it is possible that the department, within the near future, may find itself in a position to review its present findings and recommend the adoption of such an automatic stop. The subject will continue to receive the attention both of the department and of the Commission. For the immediate present, the requirement that a positive and habitual stop be made by the motorman at all drawbridge openings seems best to meet the needs of the situation.

The possibility of occasional infractions of this rule seems, however, to make it necessary to provide for additional safeguards. If in this case the gates had been installed a reasonable braking distance from the draw opening, the accident would undoubtedly have been averted. The Commission is therefore of opinion that every street railway company in the Commonwealth operating surface cars over drawbridges should lay this



matter before the proper municipal authorities and endeavor to secure the location or relocation of gates at a proper distance from such drawbridges. It is desirable, also, that such gates should be painted with alternate white and black diagonal stripes in a manner similar to that which is now being adopted by railroad companies for the protection of grade crossings. These gates should also be provided at night with red lights, located at reasonable intervals along the upper portion of the gate, and should also be interlocked with the bridge machinery so that the same cannot be operated unless all the gates are closed.

It is possible, however, that in certain cases conditions may make it impracticable to locate or relocate drawbridge gates in the manner indicated. In such cases the Commission is of the opinion that the companies, provided the necessary consent is obtained from the municipal authorities, should install and maintain at a suitable distance from each end of every drawbridge a smashboard signal, or similar device, so interlocked with the operating mechanism of the draw span as to make it impossible for the draw tender to open the draw before the smashboard is in proper position. The impact of this device upon the car body would arrest the attention of the motorman and convey the warning in season to avert an accident.

The question as to whether the positive stop shall be retained after drawbridge gates or smashboard signals have been installed to the satisfaction of the Commission is reserved for future consideration.

In the present instance there is no evidence that the accident was due in any way to defective brake equipment or to the presence of passengers in the front vestibule of the car. On the contrary the evidence indicates that the brakes, while of the hand-operated type, had recently been inspected and were in good working condition. While there is no reason to believe that air brakes would have averted this accident, the general superiority of air brakes to the hand-operated type, as applied to double truck cars, is, however, well established. It is also true that many companies have found it desirable to adopt a rule positively excluding passengers from the front vestibule. In order that every reasonable precaution may be taken to prevent accidents in the future, therefore, the Commission has felt it desirable to give both these matters renewed consideration and they will be taken up within the near future at public hearings at which all the companies in the Commonwealth may have an opportunity to present their views.



having been referred to me, I have made an examination of the lines complained of and beg to submit the following report: —

The line between the South Weymouth depot and Columbian square, a distance of 0.57 miles, was constructed of light  $4\frac{1}{2}$  inch girder rail laid on longitudinal stringers and ties in 1895. The rails, stringers, ties and ballast are in bad condition and the alignment and surface is poor.

I recommend that this track be reconstructed this year.

The line between Columbian square, South Weymouth, and East Weymouth contains about 3.23 miles of track built of 48 lb. tee rail laid in 1895. The rails, ties and ballast are in bad condition. I recommend that about one-half of this track be reconstructed this year, principally on curves, and that the balance be reconstructed during the year 1917.

The line between Weymouth and Columbian square contains about 2.20 miles of track built of 48 lb. tee rail laid in 1895 and 1896. Rails, ties and ballast are in poor condition. I recommend that about one-half of this track be reconstructed this year, principally on curves, and that the balance be reconstructed during the year 1917.

The line between Columbian square, South Weymouth, and Rockland contains about 2.87 miles of track built of 56 lb. tee rail and about .075 miles of track built of 48 lb. tee rail laid in 1895 and 1896. The 56 lb. tee rail is in fair condition but the other rail and the ties and ballast under both sections of rail are in bad condition and the alignment and surface is very poor. I recommend that the portion of track built of 48 lb. tee rail be reconstructed this year and that the portion built of 56 lb. tee rail have substantial repairs made on it, such as the renewal of certain defective rails and necessary ties and the replacing of the present ballast with new material where necessary and the realignment and surfacing of the track.

I am informed by the management of the company that the speed required to maintain the present schedule time over these lines averages between nine and eleven miles per hour. I recommend that until such time as the recommendations contained in this report are carried into effect the speed of cars over these portions of track shall not exceed a rate of ten miles per hour.

Respectfully submitted,

GEORGE W. BISHOP,  
*Chief of Inspection Department.*

JOINT USE OF TRACKS.

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*Petition of the Bay State Street Railway Company for approval of rules and regulations governing operation of cars over private tracks of the Fore River Shipbuilding Corporation in Quincy.*

After consideration, — it is

*Ordered*, That the approval of the Commission, under the provisions of chapter 70, Acts of 1909, be given to the amended rules and regulations, dated September 13, 1916, to govern the operation of cars by the Bay State Street Railway Company in Quincy, as set out in an agreement between the Old Colony Street Railway Company (now the Bay State Street Railway Company) and the Fore River Shipbuilding Company, dated December 7, 1908, copies of which, with schedule, are on file in this office; upon the understanding that should a change in the schedule be desired, amended rules and regulations and a new schedule shall be filed with the Commission for its approval.

Attest:                    ANDREW A. HIGHLANDS,  
SEPTEMBER 25, 1916.    [P. S. C. 1007]                    Secretary.

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Orders similar to the above were issued on February 4, 1916, and May 31, 1916, approving amended rules and regulations dated January 27, 1916, and May 20, 1916, respectively.

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*Petition of the Boston Elevated Railway Company and the Bay State Street Railway Company for approval of agreement for use of tracks of the Bay State street railway in the Middlesex Fells Parkway at or near the Medford-Stoneham boundary line and at the "Sheep Pasture," so-called, in Stoneham, by the Boston Elevated Railway Company.*

After notice and hearing and full consideration, — it is

*Ordered*, That the Commission hereby certify that the operation of cars by the Boston Elevated Railway Company over



certain tracks of the Bay State street railway in the Middlesex Fells Parkway, at or near the Medford-Stoneham boundary line, and in the Middlesex Fells extending from the present terminus of the West End street railway tracks near said Medford-Stoneham boundary line to the "Sheep Pasture," so-called, in Stoneham, to the extent and under the rules and regulations provided in an agreement executed between the Bay State Street Railway Company and the Boston Elevated Railway Company under date of March 11, 1916, a copy of which agreement is on file in this office, is consistent with the public safety.

Attest:                   ANDREW A. HIGHLANDS,  
MARCH 29, 1916. [P. S. C. 1292]                   Secretary.

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*Petition of the Providence and Fall River Street Railway Company and the Bay State Street Railway Company for approval of agreement for continuance of joint use of tracks in Somerset and Fall River.*

It appearing, after notice and hearing, that the terms of certain agreements executed by the Old Colony Street Railway Company (now the Bay State Street Railway Company) and the Providence and Fall River Street Railway Company dated respectively January 28, 1902, January 28, 1907, and December 31, 1909, copies of which agreements are on file with the petition, provide for a joint use of tracks in the town of Somerset and the city of Fall River that is consistent with the public safety; that said agreements have been from time to time extended by said companies; and that by an indenture dated March 31, 1916, said agreements have been further extended until July 1, 1916, — it is

*Ordered*, That such authority for entering upon and using the tracks of these railways as may be derived from the above-named agreements be hereby approved, upon the understanding that the operation of cars over the tracks subject to such use shall be governed by joint rules and regulations established and published by both companies.

Attest:                   ANDREW A. HIGHLANDS,  
MAY 10, 1916. [P. S. C. 484]                   Secretary.

## RAILROAD LOCATIONS.

*Petition of the Boston and Albany Railroad Company that the Commission prescribe the limits within which certain land in the city of Chelsea may be taken for railroad purposes.*

Upon the petition of the Boston and Albany Railroad Company, filed July 31, 1916, under the provisions of section 73 of Part II of chapter 463 of the Acts of 1906, as amended by section 2 of Part II of chapter 725 of the Acts of 1912 and as further amended by chapter 157 of the Acts of 1915, and of section 78 of Part II of chapter 463 of the Acts of 1906, as amended by chapter 157 of the Acts of 1915, praying that the Public Service Commission prescribe the limits within which it may take certain land for railroad purposes in the city of Chelsea, in the county of Suffolk, in the commonwealth of Massachusetts, outside the limits of its route already fixed in said city, for the purpose of making and securing its railroad and for depot or station purposes, or for one or more new tracks adjacent to other land occupied by it by a track or tracks already in use, due notice of the above petition and of the time and place of hearing thereon has been given to the city of Chelsea and to the owners of said land and to other parties interested therein, in the manner prescribed by law and in accordance with the order of notice issued on said petition, and hearings on said petition have been given on October 5, 1916, and October 19, 1916, at which the petitioner was represented by George H. Fernald, Esq., certain owners of land by Max Levenson, Esq., Joseph Levenson, Esq., and Samuel R. Cutler, Esq., and the city of Chelsea by Alfred L. Maggi, City Engineer.

All persons appearing at the hearing aforesaid having been heard and the subject matter of said petition having been duly considered, it is now determined and adjudged that the said Boston and Albany Railroad Company requires the land described in said petition for the purpose of making and securing its railroad and for depot and station purposes and for one or more new tracks adjacent to other land occupied by it by track already

in use, and is unable to obtain the same by agreement with the owners, and it is further determined, ordered and decreed that said land may be taken as by law provided within the following limits, to wit:

Two parcels of land situated in the city of Chelsea, in the county of Suffolk and the Commonwealth of Massachusetts, bounded and described as follows:

1. Beginning at the intersection of the northwesterly side line of a private way known as Maple street with the northeasterly side line of a private way known as Elm street produced northwardly across said Maple street and running southeastwardly by the northeasterly side line of said Elm street produced across said Maple street and by the northeasterly side line of said Elm street one hundred and sixty and twenty-eight hundredths (160.28) feet to a point on the dividing line between land belonging to Morris I. Salter and land belonging to Karl Minsk; thence turning and running northeastwardly by land belonging to said Minsk and by land belonging to William Williams two hundred and thirty-eight and eighty-four hundredths (238.84) feet to the southwesterly side line of a private way known as Fourth street; thence turning and running northwestwardly by the southwesterly side line of said Fourth street and by the said southwesterly side line of said Fourth street produced across said Maple street one hundred and sixty and twenty-eight hundredths (160.28) feet to the intersection of the said southwesterly side line of said Fourth street produced with the northwesterly side line of said Maple street; thence turning and running southwestwardly by the northwesterly side line of said Maple street two hundred and thirty-eight and eighty-four hundredths (238.84) feet to the place of beginning.

2. Beginning at the point of intersection of the northeasterly line of land belonging to Jacob Lipsitz with the southwesterly line of land belonging to the Boston and Albany Railroad Company on the southwesterly side line of a strip of land forty (40) feet in width, formerly a paper street; said point of intersection being distant twenty-eight (28) feet southwesterly from the base line of location of the Grand Junction Branch of the Boston and Albany Railroad; thence running southeastwardly by the said southwesterly line of said paper street one hundred and ninety-two and eighteen hundredths (192.18) feet to a point on the dividing line between land of said Lipsitz and land belonging to Morris M. Broomfield; thence turning a right angle and running

northeastwardly twenty (20) feet to the center line of said paper street; thence turning and running southeastwardly by the center line of said paper street three hundred and sixty and sixty hundredths (360.60) feet to the northwesterly line of said Maple street; thence turning and running northeastwardly by the said northwesterly line of said Maple street twenty (20) feet to the northeasterly line of said paper street at land of the Boston and Albany Railroad Company; thence turning and running northwestwardly by land of said Railroad Company four hundred and ninety-nine and ninety-four hundredths (499.94) feet to a stone monument distant twenty-eight (28) feet southwestwardly from the base line of location of the Grand Junction Branch of the Boston and Albany Railroad measured at right angles thereto; thence turning and running northwestwardly by land of said Railroad Company by a line twenty-eight (28) feet distant from and parallel to said base line of location sixty-six and twenty-seven hundredths (66.27) feet to the place of beginning.

This taking includes all rights of way and other easements and rights of every description in said parcels of land, excepting any rights the city of Chelsea may have to lay, maintain and use water and sewer pipes therein.

The said parcels of land are shown within lines marked in yellow upon a plan entitled "Boston & Albany R.R., N. Y. C. R.R. Co., Lessee, Boston Division, Grand Junction Branch, Additional Land Required for Railroad Purposes, Chelsea", dated Boston, July, 1916, and signed by us and filed herewith.

FREDERICK J. MACLEOD,  
EVERETT E. STONE,  
JOHN F. MEANEY,  
JOSEPH B. EASTMAN,  
CHARLES A. RUSSELL,

OCTOBER 27, 1916.

[P. S. C. 1447]

*Commissioners.*

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*Petition of the Boston and Albany Railroad Company that the Commission prescribe the limits within which certain land may be taken in the city of Newton.*

Upon the petition of the Boston and Albany Railroad Company, filed January 5, 1916, under the provisions of section 73, of part II of chapter 463 of the Acts of 1906, as amended by section 2 of part II of chapter 725 of the Acts of 1912, and as



further amended by chapter 157 of the Acts of 1915, and of section 78 of part II of chapter 463 of the Acts of 1906, as amended by chapter 157 of the Acts of 1915, praying that the Public Service Commission prescribe the limits within which it may take certain land for railroad purposes in the city of Newton, in the county of Middlesex in the commonwealth of Massachusetts, outside the limits of its route already fixed in said city, for the purpose of making or securing its railroad or for one or more new tracks adjacent to other land occupied by it by a track or tracks already in use, due notice of the above petition and of the time and place of hearing thereon has been given to the owners of said land and to other parties interested therein, in the manner prescribed by law and in accordance with the order of notice issued on said petition, and a hearing on said petition has been given on February 9, 1916, at which the petitioner was represented by George H. Fernald, Jr., and George B. Knapp and George L. Johnson appeared as remonstrants.

All persons appearing at the hearing held as aforesaid having been heard, and the subject matter of said petition having been duly considered, it is now determined and adjudged that the Boston and Albany Railroad Company requires the land described in said petition for the purpose of making or securing its railroad or for one or more new tracks adjacent to other land occupied by it by a track or tracks already in use, and is unable to obtain the same by agreement with the owners, and it is further determined, ordered and decreed that said land may be taken as by law provided within the following limits, to wit:

Two parcels of land situated in Newton in the county of Middlesex and commonwealth of Massachusetts, bounded and described as follows: —

1. Beginning at the intersection of the dividing line between land supposed to belong to Carrie B. Harvey and land of William E. Strong and Arthur M. Strong, trustees under the will of Elnathan E. Strong, with the dividing line between land of the Boston and Albany Railroad Company and land of said trustees, said point of intersection being distant thirty-seven (37) feet southeasterly from the base line of location of the Boston and Albany railroad measured at right angles thereto at Station 558 + 95.51; thence running northeastwardly by land of said Railroad Company about six hundred and seventy-three and ninety-one hundredths (673.91) feet to a point distant thirty-seven (37) feet southeasterly from said base line measured at right angles thereto at Station 552 + 13.43; thence turning and running southwestwardly by a straight line over and upon land of George L. Johnson, thence over and across land of Aroline E.

Bates, thence over and across land of George B. Knapp, thence over and across said land of William E. Strong and Arthur M. Strong, trustees, about six hundred and seventy-two (672) feet to the place of beginning.

2. Beginning at the intersection of the dividing line between land of said George L. Johnson and land of Edward L. Estabrook, Franklin Estabrook and Sarah E. Estabrook, trustees of the Estabrook Real Estate Trust, with the dividing line between land of the Boston and Albany Railroad Company and land of said Johnson, said point of intersection being distant thirty-seven (37) feet southeasterly from the base line of the location of the Boston and Albany railroad measured at right angles thereto at Station 551 + 50.77; thence running northwestwardly by land of said Railroad Company nine (9) feet to a corner of land of said Railroad Company; thence turning and running northeastwardly by land of said Railroad Company about one hundred and forty-six and seventy-three hundredths (146.73) feet to a point distant twenty-eight (28) feet southeasterly from said base line of location measured at right angles thereto at Station 550 + 01.89; thence turning a right angle and running southeastwardly by the remaining land of said trustees of said Estabrook Real Estate Trust nine (9) feet to a point distant thirty-seven (37) feet southeasterly from said base line measured at right angles thereto at said Station 550 + 01.89; thence turning and running southwestwardly over and upon said land of said Estabrook Real Estate Trust by a line parallel with and distant thirty-seven (37) feet southeasterly from said base line about one hundred and forty-six (146) feet to the place of beginning.

The said parcels of land are shown within yellow lines upon a plan entitled "Boston & Albany R.R., N. Y. C. R.R. Co. (Lessee), Boston Division, Main Line, Additional Land Required for Railroad Purposes, Riverside," dated February, 1916, and signed by us and filed herewith.

FREDERICK J. MACLEOD,  
EVERETT E. STONE,  
JOHN F. MEANEY,  
JOSEPH B. EASTMAN,  
CHARLES A. RUSSELL,

FEBRUARY 17, 1916. [P. S. C. 1235]

Commissioners.

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*Petition of the Boston and Albany Railroad Company that the Commission prescribe the limits within which certain land may be taken in the town of Westfield.*

Upon the petition of the Boston and Albany Railroad Company, filed June 7, 1916, under the provisions of section 73 of

part II of chapter 463 of the Acts of 1906, as amended by section 2 of part II of chapter 725 of the Acts of 1912, and as further amended by chapter 157 of the Acts of 1915, and of section 78 of part II of chapter 463 of the Acts of 1906, as amended by chapter 157 of the Acts of 1915, praying that the Public Service Commission prescribe the limits within which it may take certain land for railroad purposes in the town of Westfield, in the county of Hampden and commonwealth of Massachusetts, outside the limits of its route already fixed in said town, for the purpose of making or securing its railroad or for one or more new tracks adjacent to other land occupied by it by a track or tracks already in use, due notice of the above petition and of the time and place of hearing thereon has been given to the owners of said land and to other parties interested therein, in the manner prescribed by law and in accordance with the order of notice issued on said petition, and a hearing on said petition has been given on June 20, 1916, at which the petitioner was represented by George H. Fernald, Jr., and there was no appearance in opposition.

All persons appearing at the hearing held as aforesaid having been heard and the subject matter of said petition having been duly considered, it is now determined and adjudged that the Boston and Albany Railroad Company requires the land described in said petition for the purpose of making or securing its railroad or for one or more new tracks adjacent to other land occupied by it by a track or tracks already in use, and is unable to obtain the same by agreement with the owners, and it is further determined, ordered and decreed that said land may be taken as by law provided within the following limits, to wit:—

A parcel of land situated in Westfield, in the county of Hampden and commonwealth of Massachusetts, bounded and described as follows:—

Beginning at the intersection of the northeasterly side line of the location of the Boston and Albany railroad with the southeasterly side line of a road now or formerly known as Williams' Riding Way, at land supposed to belong to Homer Bush, at a point distant forty-one and twenty-five hundredths ( $41\frac{25}{100}$ ) feet northeasterly from the base line of said location, measured at right angles thereto at station 453 + 22; thence running northeasterly by the said southeasterly side line of said road about thirty-one (31) feet to a point distant seventy (70) feet northeasterly from the base line of said location, measured at right angles thereto at station 453 + 10; thence turning and running southeasterly over land supposed to belong to said Bush, over land supposed to belong to the American Writing Paper Company and over land supposed to

belong to Edmund Syriac, by a line drawn parallel with and distant seventy (70) feet northeasterly from said base line about nineteen hundred and fourteen and thirty-six hundredths (1914.36) feet to a point opposite station 434 + 23.45 on said base lines; thence continuing in a southeasterly direction over said land supposed to belong to said Syriac about one hundred and two and twenty-one hundredths (102<sup>21</sup>/<sub>100</sub>) feet to a point distant eighty (80) feet northeasterly from said base line, measured at right angles thereto at station 433 + 23.45; thence continuing in a southeasterly direction over said land supposed to belong to said Syriac, over land supposed to belong to George F. Sibley and over land supposed to belong to Henry M. Van Deusen, by a line drawn parallel with and distant eighty (80) feet northeasterly from said base line about seventeen hundred and nine and fifty-one hundredths (1709<sup>51</sup>/<sub>100</sub>) feet to a point opposite station 416 + 23.45 on said base line; thence turning at a right angle and running southwestwardly by said land supposed to belong to said Van Deusen thirty (30) feet to the said northeasterly side line of said location; thence turning and running northwestwardly by said location to the place of beginning.

The said parcel of land is shown within yellow lines upon a plan entitled "Boston & Albany R.R., N. Y. C. R.R. Co. Lessee Albany Division Main Line Additional Land Required for Railroad Purposes, Westfield," dated June, 1916, and signed by us and filed herewith.

EVERETT E. STONE,  
JOHN F. MEANEY,  
JOSEPH B. EASTMAN,  
CHARLES A. RUSSELL,

JUNE 21, 1916. [P. S. C. 1385]

*Commissioners.*

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*Petition of Grafton and Upton Railroad Company for approval of change in the location of its railroad in the town of Hopedale.*

After notice and hearing and full consideration, — it is

*Ordered*, That the approval of the Commission be hereby given, under the provisions of chapter 463 of the Acts of 1906, section 77, part II, to a change in the location of the Grafton and Upton railroad in the town of Hopedale, for the purpose of improving the alignment of said railroad, as shown on a plan entitled "Grafton & Upton Railroad. Plan & Profile showing Relocation at Hopedale, Mass.," dated 1916, and on file in this office.

Attest: ANDREW A. HIGHLANDS,

DECEMBER 22, 1916. [P. S. C. 1600]

*Secretary.*



*Petition of the Nashua and Lowell Railroad Corporation that the Commission prescribe the limits within which certain land may be taken in the city of Lowell.*

Upon the petition of the Nashua and Lowell Railroad Corporation, filed June 13, 1916, under the provisions of section 73 of part II of chapter 463 of the Acts of 1906, as amended by section 2 of part II of chapter 725 of the Acts of 1912, and as further amended by chapter 157 of the Acts of 1915, and of section 78 of part II of chapter 463 of the Acts of 1906, as amended by chapter 157 of the Acts of 1915, praying that the Public Service Commission prescribe the limits within which it may take certain land for railroad purposes in the city of Lowell, in the county of Middlesex and commonwealth of Massachusetts, outside the limits of its route already fixed in said city, for the purpose of making and securing its railroad or for depot or station purposes, or for one or more new tracks adjacent to other land occupied by it by a track or tracks already in use, due notice of the above petition and of the time and place of hearing thereon has been given to the owners of said land and to other parties interested therein, in the manner prescribed by law and in accordance with the order of notice issued on said petition, and hearings have been given on July 6, 1916, and July 20, 1916, at which the petitioner was represented by Woodward Hudson, Esq., and the remonstrants were represented by Alfred P. Sawyer, Esq., Harold A. Varnum, Esq., and Samuel Hadley, Esq., and all persons appearing at the hearings held as aforesaid have been heard.

At the last hearing the attorney for the railroad company stated that since the former hearing an agreement had been entered into between the company and the several owners for the purchase of the second and third parcels of real estate described in the company's petition and that the company, therefore, did not now ask to have said parcels of land included in the order prayed for.

The respondent, Martina A. Gage, has requested the Commission to make the following findings and rulings: —

1. That said petitioner has not complied with the requirement of the statute relating to its inability to agree with the owner of the premises. The necessity of such attempt to agree is imperative and a condition precedent to the exercise of compulsory powers. The mere allegation of such inability in the petition is insufficient.

2. That the petitioner has not proven or established the public necessity for taking the Gage land described as Parcel 1 in its petition.

3. That the petitioner cannot take land not necessary for its needs as a public carrier, and this Commission has no delegated power to grant authority to the petitioner to take the Gage land as described in its petition which in legal effect extends to the middle of a navigable river.

4. That the petitioner cannot in order to avoid the foregoing objection to its petition, or under pretense of not interfering with the Gage riparian rights, take all of her land lying between its location and the Merrimack river, save a narrow and worthless strip along the shore.

5. That the petitioner cannot take this Gage land depriving the owner of access to her remaining land.

6. That the petitioner cannot take a portion of this Gage land thereby rendering the remainder of her land inaccessible and valueless.

With reference to the first finding and ruling requested, it is sufficient to say that it has been repeatedly decided in this Commonwealth, under similar statutes providing a remedy by petition in case of parties being unable to agree, that bringing the petition, without evidence of negotiation or of attempts to negotiate, shows the petitioner's election not to agree and is enough to satisfy the requirements of the statute in regard to that, and the Commission therefore so rules in this proceeding. (See *Braintree Water Supply Company v. Braintree*, 146 Mass. 482, at page 488, and cases cited.) If, however, affirmative evidence were necessary, the hearings disclosed enough to satisfy the Commission of the attitude of the parties and their inability to agree.

The remaining requests for findings and rulings, so far as not covered in this report and accompanying order, relate either to questions not now in issue and which can properly arise only in proceedings for the assessment of damages caused by the proposed taking, or are deemed otherwise inapplicable to this proceeding and to the powers and duties of the Commission in the premises, and are refused.

The subject matter of said petition having been duly considered, it is now determined and adjudged that the Nashua and Lowell Railroad Corporation requires so much of the first parcel of land described in said petition as is hereinafter more particularly bounded and described, for the purpose of making or securing its railroad or for one or more new tracks adjacent to other land occupied by it by a track or tracks already in use, and is unable to obtain the same by agreement with the owner, and it is further determined, ordered and decreed that all that portion of said first described parcel of land may be taken

without the permission of the owners thereof as by law provided, which is included within the following prescribed limits, to wit:

A parcel of land situated in Lowell, in the county of Middlesex and commonwealth of Massachusetts, bounded and described as follows: —

Beginning at a point on the northerly boundary of land of the Nashua and Lowell Railroad Corporation at its intersection with the centre line of the original culvert at Black Brook so-called and running thence south  $78^{\circ} 9'$  west by said railroad a distance of two hundred (200) feet; thence south  $66^{\circ} 15' 12''$  west by said railroad land a distance of sixty and  $\frac{25}{100}$  (60.25) feet; thence south  $78^{\circ} 9'$  west by said railroad land a distance of nine hundred and forty-nine (949) feet; thence south  $80^{\circ} 33'$  west by said railroad land a distance of two hundred and two and one-tenth (202.1) feet; thence on a curve to the right with a radius of 4967 feet by said railroad land a distance of two hundred and fourteen and two-tenths (214.2) feet to a point on the prolongation of the easterly side line of the Old Ferry road or Baldwin street so-called; thence north  $13^{\circ} 27'$  east on the prolongation of the easterly line of the said old Ferry road a distance of thirty (30) feet to the bank of Merrimack river; thence northeasterly and easterly by the bank of Merrimack river a distance of about sixteen hundred and fifty (1650) feet to Black Brook; thence south  $11^{\circ} 51'$  east along the center of Black Brook by land of the Nashua and Lowell Railroad Corporation a distance of one hundred (100) feet to the point of beginning.

Said parcel containing an area of five and sixteen one-hundredths (5.16) acres supposed to belong to Martina A. Gage and is subject to certain supposed flowage rights held by Proprietors of Locks and Canals on Merrimack river.

The said parcel of land is shown within the lines marked in yellow upon a plan entitled "Land in Lowell, Mass., belonging to Martina A. Gage, required by the Nashua and Lowell Railroad Corporation for railroad purposes," dated July, 1916, and signed by us and filed herewith.

FREDERICK J. MACLEOD,  
EVERETT E. STONE,  
JOHN F. MEANEY,  
JOSEPH B. EASTMAN,  
CHARLES B. RUSSELL,

AUGUST 8, 1916. [P. S. C. 1395]

*Commissioners.*

*Petition of the New York, New Haven and Hartford Railroad Company that the Commission prescribe the limits within which certain land in Springfield may be taken for railroad purposes.*

Upon the petition of the New York, New Haven and Hartford Railroad Company, filed July 24, 1916, under the provisions of section 73 of Part II of chapter 463 of the Acts of 1906, as amended by section 2 of Part II of chapter 725 of the Acts of 1912, and as further amended by chapter 157 of the Acts of 1915, and of section 78 of Part II of chapter 463 of the Acts of 1906, as amended by chapter 157 of the Acts of 1915, praying that the Public Service Commission prescribe the limits within which it may take certain land for railroad purposes in the city of Springfield, in the county of Hampden, in the commonwealth of Massachusetts, outside the limits of its route already fixed in said city, for the purpose of making and securing its railroad and for depot or station purposes and for one or more new tracks adjacent to other land occupied by it by tracks already in use, due notice of the above petition and of the time and place of hearing thereon has been given to the owners of said land and to other parties interested therein, in the manner prescribed by law and in accordance with the order of notice issued on said petition, and a hearing on said petition has been given on September 28, 1916, at which the petitioner was represented by F. A. Farnham, Esq., its attorney, and certain owners of land by E. H. Brewster, Esq.

All persons appearing at the hearing held as aforesaid having been heard, and the subject matter of said petition having been duly considered, it is now determined and adjudged that the said New York, New Haven and Hartford Railroad Company requires the land described in said petition for the purpose of making and securing its railroad and for depot or station purposes and for one or more new tracks adjacent to other land occupied by it by tracks already in use, and is unable to obtain the same by agreement with the owners, and it is further determined, ordered and decreed that said land may be taken as by law provided within the following limits, to wit:

A parcel of land situated in Springfield in the county of Hampden and the commonwealth of Massachusetts, bounded and described as follows:

On the north by land of the city of Springfield by a line about forty-two (42) feet in length; on the east by the existing property line of the New York, New Haven and Hartford railroad a distance of about eight hun-



dred eighty-eight (888) feet; on the south by other land supposed to be of the Elisha Gunn estate by a line about one hundred twenty-five (125) feet in length, and being the southerly line of Chapelle street, so-called, projected easterly through station 136+43; and on the west by a line about eight hundred eighty-five (885) feet in length connecting said northerly and southerly boundaries, and being for the most part the property lying between the location of said railroad and the property of various owners of estates fronting on Colton street. The land is believed by the petitioner to belong to the estate of Elisha Gunn, the heirs of which are supposed to be Elisha Gunn, Mary E. Simonds, Laura G. Candler, and Helen G. Burnie.

The said parcel of land is shown within lines marked in yellow upon a plan entitled, "New York, New Haven and Hartford Railroad, Department of Real Estate, Right of Way and Taxes, Land in Springfield, Mass., Armory Station, Required by Railroad For Bulkyard Facilities," dated June, 1916, and signed by us and filed herewith.

FREDERICK J. MACLEOD,  
EVERETT E. STONE,  
JOHN F. MEANEY,  
JOSEPH B. EASTMAN,  
CHARLES A. RUSSELL,

OCTOBER 27, 1916.

[P. S. C. 1433]

*Commissioners.*

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*Petition of the Union Freight Railroad Company for approval  
of location in Atlantic Avenue in Boston.*

After public notice and hearing and full consideration, — it is  
*Ordered*, That the approval of the Commission be hereby given to the grant of location and rights to the Union Freight Railroad Company in the city of Boston, established under an order of the board of street commissioners of the city of Boston dated June 13, 1916, a copy of which order, with accompanying plan, is on file in this office, as follows: —

*In Boston* 20th location: Location for two curved tracks extending from the main line track at a point in Atlantic avenue a short distance southerly from the intersection of Market street and running north-easterly to the side line of Atlantic avenue at T Wharf.

And the Commission certifies that the above named grant of location is consistent with the public interests.

Attest:           ANDREW A. HIGHLANDS,

JULY 11, 1916.

[P. S. C. 1408]

*Secretary.*

*Petition of the Vermont and Massachusetts Railroad Company that the Commission prescribe the limits within which certain land may be taken for railroad purposes in the town of Gardner.*

Upon the petition of the Vermont and Massachusetts Railroad Company, filed February 10, 1916, under the provisions of section 73 of part II of chapter 463 of the Acts of 1906, as amended by section 2 of part II of chapter 725 of the Acts of 1912, and as further amended by chapter 157 of the Acts of 1915, and of section 78 of part II of chapter 463 of the Acts of 1906, as amended by chapter 157 of the Acts of 1915, praying that the Public Service Commission prescribe the limits within which it may take certain land for railroad purposes in the town of Gardner in the county of Worcester in the commonwealth of Massachusetts, outside the limits of its route already fixed in said town, for the purpose of making and securing its railroad or for depot or station purposes, or for one or more new tracks adjacent to other land occupied by it by a track or tracks already in use, due notice of the above petition and of the time and place of hearing thereon has been given to the owners of said land and the other parties interested therein in the manner prescribed by law in accordance with the order of notice issued upon the petition, and a hearing upon said petition has been given on March 1, 1916, at which the petitioner was represented by Thornton Alexander, and Chester B. Kendall, owner of a portion of said land, also appeared.

All persons appearing at the hearing held as aforesaid having been heard and the subject matter of said petition having been duly considered, it is now determined and adjudged that the Vermont and Massachusetts Railroad Company requires the land described in said petition for the purpose of making or securing its railroad or for one or more new tracks adjacent to other land occupied by it by a track or tracks already in use, and is unable to obtain the same by agreement with the owners; and it is further determined, ordered and decreed that said land may be taken as by law provided within the following limits, to wit:

Three parcels of land situated in Gardner in the county of Worcester and the commonwealth of Massachusetts, bounded and described as follows: —

*Parcel 1.* — A parcel of land supposed to be the property of Chester B. Kendall of said Gardner, bounded and described as follows: Beginning

at a point distant forty-one and twenty-five hundredths (41.25) feet northeasterly at right angles from the center line of the location of the Vermont and Massachusetts Railroad Company and on a line extended from Station 3394 + 62.6 north  $83^{\circ} 20' 20''$  east at land of the Vermont and Massachusetts Railroad Company; thence by the location of said Vermont and Massachusetts Railroad Company north  $61^{\circ} 29' 40''$  west seven hundred eighty-eight and eighty-one hundredths (788.81) feet, said line being parallel to said center line; thence turning and running north  $28^{\circ} 30' 20''$  east thirty-three (33) feet; thence turning and running south  $61^{\circ} 29' 40''$  east by land of Chester B. Kendall in a line parallel with and distant northeasterly at right angles seventy-four and twenty-five hundredths (74.25) feet from said center line five hundred and fifty-five (555) feet; thence turning and running north  $28^{\circ} 30' 20''$  east two hundred and twenty-five (225) feet; thence turning and running south  $61^{\circ} 29' 40''$  east still by land of said Kendall six hundred (600) feet to land of William J. Burns; thence turning and running south  $83^{\circ} 20' 20''$  west by land of said Burns and other land of the Vermont and Massachusetts Railroad Company four hundred forty-seven and ninety-five hundredths (447.95) feet to the point of beginning, said parcel containing one hundred and twenty-five thousand eight hundred seventy-six (125,876) square feet more or less; supposed to be subject to an easement for a telephone and telegraph line held by the New England Telephone and Telegraph Company in the land of said Kendall from which the proposed taking is made.

*Parcel 2.* — A parcel of land supposed to be the property of Ralph C. Lawrence of the City of Fitchburg, County of Worcester, in the said Commonwealth, bounded and described as follows: Beginning at a point distant thirty-three (33) feet at right angles from the center line of Vermont and Massachusetts Railroad Company and on a line extended from Station 3389 + 22.1 north  $1^{\circ} 40'$  east at land of the Vermont and Massachusetts Railroad Company; thence running north  $1^{\circ} 40'$  east by land of said Vermont and Massachusetts Railroad Company about sixteen (16) feet; thence turning and running southeasterly by land of said Ralph C. Lawrence by a curved line concentric with the said center line having a radius of six thousand nine hundred sixty-eight and eighty-seven hundredths (6968.87) feet and distant northeasterly at all points from said center line forty-seven (47) feet about one hundred sixty-two (162) feet; thence continuing on a curved line concentric with said center line having a radius of two thousand eight hundred seventeen and ninety-three hundredths (2817.93) feet and distant northeasterly at all points from said center line forty-seven (47) feet about two hundred thirteen (213) feet to land of William J. Burns; thence turning and running south  $46^{\circ}$  east about thirty (30) feet to the location of the said Vermont and Massachusetts Railroad Company; thence turning and running northwesterly by the location of said Railroad in a curved line concentric with the said center line, having a radius of two thousand eight hundred



thirty-one and ninety-three hundredths (2831.93) feet and distant northeasterly at all points from said center line thirty-three (33) feet about two hundred forty-two (242) feet; thence continuing along said location on a curved line concentric with said center line having a radius of six thousand nine hundred eighty-two and eighty-seven hundredths (6982.87) feet and distant northeasterly at all points from said center line thirty-three (33) feet about one hundred fifty-six (156) feet to point of beginning, said parcel containing five thousand four hundred eleven (5,411) square feet more or less; meaning and intending to include in this description a strip of land of a uniform width of fourteen (14) feet, supposed to be subject to a possible right of dower in the wife of Robert Lawton, and to an easement for a telephone and telegraph line held by the New England Telephone and Telegraph Company in the parcel from which this lot is to be taken.

*Parcel 3.* — A parcel of land supposed to be the property of William J. Burns of said Gardner, bounded and described as follows: Beginning at a point distant thirty-three (33) feet at right angles from the center line of the location of the Vermont and Massachusetts Railroad Company at land now or late of Ralph C. Lawrence; thence north  $46^{\circ}$  west about thirty (30) feet; thence turning and running southeasterly by a curved line concentric with the said center line having a radius of two thousand eight hundred seventeen and ninety-three hundredths (2817.93) feet and distant northeasterly at all points forty-seven (47) feet from said center line about seven hundred fifty-three (753) feet to land of the Vermont and Massachusetts Railroad Company; thence turning and running south  $46^{\circ}$  east about twenty (20) feet by said Vermont and Massachusetts Railroad Company land; thence by the location of said Vermont and Massachusetts Railroad Company by a curved line concentric with the said center line having a radius of two thousand eight hundred thirty-one and ninety-three hundredths (2831.93) feet and distant northeasterly at all points from said center line thirty-three (33) feet about seven hundred forty-five (745) feet to the point of beginning, said parcel containing about ten thousand four hundred eighty-six (10,486) square feet more or less; meaning and intending to include in this description a strip of land of a uniform width of fourteen (14) feet, being subject to three mortgages, one supposed to be held by S. Augustus Howe and Willie F. Howe, dated June 29, 1886, recorded Book 1230, page 345; the second one supposed to be held by Sarah B. Howe, dated August 1, 1899, recorded Book 1623, Page 188, and a third one supposed to be held by Sarah B. Howe, dated July 15, 1904, recorded Book 1788, page 49, and to a possible easement for a telephone and telegraph line held by the New England Telephone and Telegraph Company in the parcel from which this lot is to be taken.

The said parcels of land are shown within red lines upon a plan entitled "Land in Gardner, Mass., belonging to Chester B.



Kendall and others, required by the Vermont and Massachusetts Railroad Company for railroad purposes," dated January, 1916, and signed by us and filed herewith.

FREDERICK J. MACLEOD,  
EVERETT E. STONE,  
JOHN F. MEANEY,  
JOSEPH B. EASTMAN,  
CHARLES A. RUSSELL,

MARCH 2, 1916.

[P. S. C. 1262]

*Commissioners.*

## STREET RAILWAY LOCATIONS.

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*Petition of citizens of Lowell that the Bay State Street Railway Company be required to extend its lines in Varnum avenue in the city of Lowell upon grants of location legally made to said company.*

This matter was originally heard by the Board of Railroad Commissioners and was taken up by this Commission upon a new petition filed May 19, 1915. Public hearings have been held and a view taken by the Commission.

The Lowell and Dracut Street Railway Company, predecessor in title to the present company, by a grant of the board of aldermen of the city of Lowell approved November 11, 1887, was authorized to extend its tracks from the intersection of Mammoth road, so-called, with Varnum avenue, westerly through Varnum avenue to Totman street. By a grant of the board of aldermen, approved July 19, 1897, the Lowell and Suburban Street Railway Company, successors to the Lowell and Dracut company, was authorized to extend its tracks in Varnum avenue from Totman street northerly to the northerly entrance to the Boulevard, so-called, at Fowler road. The Lowell and Suburban company, in 1897, constructed the line which is now operated from Mammoth road to Lexington avenue, leaving about a mile of the first described location not built upon. The petitioners contend that the company should be compelled not only to build the extension upon the first grant of location but to extend its lines to Fowler road, the terminus of the second location.

It has been uniformly held by our courts that the grant of a location established no contractual relation between the municipality and the company and that the grant was but a license to build, revocable by the city or town, and imposing no obligation upon the company to build upon the location granted. (See *Keefe v. Lexington and Boston Street Railway Company*, 185 Mass. 183; *Springfield v. Springfield Street Railway Company*, 182 Mass. 41; *Worcester v. Worcester Consolidated Street Railway Company*, 196 U. S. 539; *Amesbury v. Citizens Electric Street Railway Company*, 199 Mass. 394.)

It was contended by the petitioners that the provisions of section 23 of chapter 784 of the Acts of 1913 (the Public Service Commission Act) gave to this Commission the power to order the building of extensions. Section 23 reads as follows: —

SECTION 23. Whenever the commission shall be of opinion, after a hearing had upon its own motion or upon complaint, that the regulations, practices, equipment, appliances or service of any common carrier, now or hereafter subject to its jurisdiction are unjust, unreasonable, unsafe, improper or inadequate, the commission shall determine the just, reasonable, safe, adequate and proper regulations and practices, thereafter to be in force and to be observed, and the equipment, appliances and service thereafter to be used and shall fix and prescribe the same by order to be served upon every common carrier to be bound thereby. The commission shall have power after such a hearing to order from time to time that a railroad company shall operate its lines, of standard gauge, or such parts thereof as the commission shall prescribe, by electric power instead of by steam power, and in its order shall prescribe the time within which the work of electrification shall be done. Before making such order, the commission shall consider the relative importance and necessity of the changes in any specific regulations, practices, equipment and appliances proposed to be included therein and of other changes which may be brought to its attention in the course of such hearing, the financial ability of the carrier to comply with the requirements of the order, and the effect of the carrier's compliance therewith, upon its financial ability to make such other changes, if any, as may be deemed by the commission of equal or greater importance and necessity in the performance of the service which the carrier has professed to render to the public. It shall be the duty of every such common carrier to observe and obey every requirement of every such order so served upon it, and to do everything necessary or proper in order to secure absolute compliance with and observance of every such order by all its officers, agents and employees.

The petitioners urged upon the Commission that the power vested in it to regulate and prescribe the "service" to be given by a common carrier embraced and included the authority to order the construction of a new line upon a location already granted. The respondent street railway company contended that "service" has a generally accepted meaning and, taking the context of the statute applying the authority of the Commission to the "regulations, practices, equipment, appliances or service of any common carrier," it must be held to limit the powers of the Commission to the regulation of methods of operation and means of serving the public upon existing lines.

It is now unnecessary to consider the scope of authority granted

by section 23, as originally enacted, because chapter 244 of the General Acts of 1916 amends section 23 in terms expressly granting to the Commission authority to order the building of extensions upon locations granted to street railway companies. By said chapter 244 of the General Acts of 1916, section 23 above quoted was amended by the insertion after the word "hearing," in the twelfth line, the words "to order any street railway company to build and operate any just and reasonable extensions of its lines for which it may have or may be granted locations, and, . . ." Section 23, as amended, now gives to the Commission specific authority to order the building of extensions upon locations granted to street railway companies. It imposes, however, upon the Commission the duty of examining the circumstances and conditions attendant upon every particular case and considering the effect of any order to be made upon the financial ability of a company to make necessary changes of equal or greater importance. The present financial condition of the Bay State Street Railway Company does not warrant the enforced building of extensions where the prospect of securing sufficient revenue to justify their construction cannot be made to appear. Traffic counts made by the parties to this proceeding and by inspectors of the Commission, and other evidence submitted, hold out no promise of such increase in revenue as would indicate that the proposed extension to the terminus of the second location could, in any reasonably proximate period, justify its construction.

The fact that the first grant of location has been but partly built upon, however, gives to this part of the line a different status from that of the second location, no part of which is regarded as of any value by the company and which the company has indicated its willingness to surrender. It is our view that the action of the company in building upon part of the first described location was such a use of that location as to impose upon the company the obligation of completing the work to the northerly limit of that location. We are of the opinion that the company should complete the extension upon that part of the first location not yet built upon, and an order directing its construction and operation will issue. Upon the evidence before us at this time the prayer of the petition relative to the second described location must be denied.

It is therefore

*Ordered*, That the Bay State Street Railway Company shall proceed to build and operate an extension of its line in Varnum



avenue in the city of Lowell, northerly from its present terminus in said Varnum avenue to the intersection of Totman street with said Varnum avenue, upon the location granted to its predecessor in title, the Lowell and Dracut Street Railway Company, by the board of aldermen of the said city and approved November 11, 1887.

By the Commission,

ALLAN BROOKS,

SEPTEMBER 12, 1916.

[P. S. C. 949]

*Assistant Secretary.*

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*Petition of the Boston Elevated Railway Company for approval of the location designated in said petition for a switch connection in the city of Cambridge.*

The Boston Elevated Railway Company has presented a petition asking for approval of a location for a switch connection on Cambridge street in the city of Cambridge, connecting its tracks with a private side track upon land adjoining said Cambridge street.

After notice and hearing it appears that the location for said switch was granted by an order of the board of aldermen of Cambridge for the year 1915, dated December 29, 1915. The company filed its petition with the Commission on January 4, 1916. The succeeding board of aldermen of Cambridge on January 11, 1916, passed an order which purported to revoke the location granted by the previous board, and to declare the action of that board null and void. This order was presented to the mayor and returned to the board without his approval, January 18, 1916, and on February 15 the order was passed by the board over the mayor's veto.

At the hearings and conferences held by the Commission, remonstrants have opposed the approval of the location on the ground that it would open the way for conducting a freight business upon street railway tracks through the public streets of Cambridge, and they have further urged that the action of the board of aldermen has effectively revoked the location, and that there is no location properly before this Commission. Upon this last point, we rule that when a grant of location has once been formally made and the company has filed its petition for approval of such location with this Commission, thereafter the city can revoke such location only under the provisions of section 66, part III, chapter 463 of the Acts of 1906, and subject to the restric-

tions therein provided, and that there has been no valid revocation of such location in accordance with the provisions of said section. In this view we are supported by a ruling of the Board of Railroad Commissioners on a petition of the Pittsfield Electric Street Railway Company upon exactly similar facts. (*36 Ann. Rep. of R.R. Comm'rs*, p. 61, 1905.)

The Commission has taken an official view of the premises and has carefully considered all the evidence and arguments submitted to it, and it is satisfied that this location is consistent with the public interests. It is therefore

*Ordered*, That the Commission hereby certify that the location for a switch connection on Cambridge street in the city of Cambridge, granted by order of the board of aldermen of that city, dated December 29, 1915, a copy of which order, with accompanying plan, is on file in this office, is consistent with the public interests.

By the Commission,

ANDREW A. HIGHLANDS,

MAY 2, 1916. [P. S. C. 1231]

*Secretary.*

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*Petition of the Boston Elevated Railway Company for approval of plan showing proposed change of that part of the route of its proposed elevated railway in the city of Everett.*

Upon the petition of the Boston Elevated Railway Company, after public notice and hearing, the annexed plan numbered 30156 showing proposed change of that part of its proposed elevated railway in the city of Everett, from Mystic street to Bernard avenue, from that shown on plan numbered 30155 approved by the board of railroad commissioners June 7, 1910, is hereby approved.

FREDERICK J. MACLEOD,  
EVERETT E. STONE,  
JOHN F. MEANEY,  
JOSEPH B. EASTMAN,  
CHARLES A. RUSSELL,

JULY 14, 1916. [P. S. C. 1198]

*Commissioners.*

## SIGNALS — RAILROAD OR RAILWAY.

## CIRCULAR.

*Block Signal and Interlocking Statistics.*

It is requested that the information called for below be furnished the Commission by all railroad companies not later than October 1, 1916, namely: —

A statement as of June 30, 1916, giving block signal information on Form No. 1, interlocking plant information on Form No. 2, as indicated by the column headings on the blanks and explained below.

## SIGNAL REPORT FORM No. 1.

The headings of column 1 and columns 5 to 28 inclusive are self explanatory.

*Column 2.* — The signals, apparatus and practices are to be described in accordance with the abbreviations at the end of this circular.

*Columns 3 and 4.* — It is assumed that on single track lines equipped with automatic block signals the number of block sections is the same, or approximately the same, for trains moving in one direction as for those moving in the other direction. If there is a considerable difference it should be shown in a foot-note.

Total miles of road and miles of main track operated by company in Massachusetts. (State in foot-note.)

Same, excluding freight lines, *i.e.*, lines on which no regular passenger trains are run. (State in foot-note.)

Same, excluding freight lines, and also excluding lines on which only one engine is in service. (To be entered in column 29.)

Per cent of foregoing statement operated under the block system. (To be entered in column 30.)

Note mileage on which alternating current is used for track and signal circuits.

Indicate whether or not any form of automatic stop is used.

In general, begin at the Boston end of the road or division or district, and enter items in the table in geographical order as far as practicable. If a geographical record is already in use, the report may be made on the plan in use. If there is in use a map or sketch of the road, or a table or

characteristic sheet showing information here asked for, a copy of that may accompany the report.

Where more than one blank is required a numbered series may be used, one sheet for a division or a district. The total for the road can then be shown at the bottom of the last sheet.

### SIGNAL REPORT FORM No. 2.

The headings of columns 4-20, inclusive, and 24-28, inclusive, are self explanatory.

(1) *Location.* — Symbol or designation of tower or plant, and name of nearest station; if controlling drawbridge, state number and location of bridge.

(2) *Roads concerned.* — Give names of all railroads operating trains through each plant.

(3) *Type of Plant.* — State whether plant is mechanical, electro-mechanical, pneumatic, electro-pneumatic, all electric, or other type.

(21) State whether oil, electric or gas lamps are used.

(22) State number of switches, counting as one switch each pair of points in single switches, crossovers, slip switches and movable point frogs.

(23) State number of derails, counting as one derail each derailing device, whether consisting of a single point, a pair of points, or other derailing device.

For purposes of this report interlocking limits will be considered as the territory on each track lying between the home or dwarf signals most remote from the point to be protected.

(29) State whether approach or time locking is used; and if so, to what extent, in whole or in part.

(30) State the method or methods of switch protection employed, and the type or types of switch-locking devices used.

In a statement accompanying this report indicate whether torpedo placing machines are used, and if so, to what extent; and whether automatic-train-control systems are used, and if so, to what extent.

### *Abbreviations.*

N. C.,	.	.	.	.	Signals standing normally in the clear or proceed position.
N. D.,	.	.	.	.	Signals standing normally in danger or stop position.
Exp. D.,	.	.	.	.	Exposed disk ("clockwork").
Elect. P.,	.	.	.	.	Electro-pneumatic.
Mo.,	.	.	.	.	Electric motor.
Gas,	.	.	.	.	Electro-gas motor.
Morse,	.	.	.	.	Morse telegraph.
Phone,	.	.	.	.	Telephone.



Bell, . . . . .	Communication from station to station by electric-bell code, without "control" apparatus.
Mi., . . . . .	Miles.
3 pos., . . . . .	Three-position.
Upward, . . . . .	Semaphore signals with which the "caution" or "proceed" indication is given by inclining the arm upward from the horizontal.

By order of the Commission,

ANDREW A. HIGHLANDS,

JULY 1, 1916. [P. S. C. 1049-G]

Secretary.

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CIRCULAR.

*Block Signal Statistics.*

It is requested that the information called for below be furnished the Commission by all street railway companies not later than October 1, 1916, namely:—

A statement as of June 30, 1916, giving block signal information on Form No. 1, as indicated by the column headings on the blanks and explained below.

SIGNAL REPORT FORM NO. 1.

The headings of column 1 and columns 3 to 28 inclusive are self explanatory.

*Column 2.*—The signals, apparatus and practices are to be described in accordance with the abbreviations at the end of this circular.

Total miles of single main track operated by company in Massachusetts. (To be entered in column 29.) (This should not include any part of the double track system or where single track is used for traffic in one direction only.)

Per cent of foregoing statement operated under the block system. (To be entered in column 30.)

In general, begin at the Boston end of the road or division or district, and enter items in the table in geographical order as far as practicable. If a geographical record is already in use, the report may be made on the plan in use. If there is in use a map or sketch of the road, or a table or characteristic sheet showing information here asked for, a copy of that may accompany the report.

Where more than one blank is required a numbered series may be used, one sheet for a division or a district. The total for the road can then be shown at the bottom of the last sheet.

*Abbreviations.*

C.,	.	.	.	.	.	Counting Type.
N. C.,	.	.	.	.	.	Non-counting Type.
S.,	.	.	.	.	.	Semaphore Type.
H. T.,	.	.	.	.	.	Hand-Throw Type.
L.,	.	.	.	.	.	Light.
Mo.,	.	.	.	.	.	Motor.

By order of the Commission,

ANDREW A. HIGHLANDS,

JULY 1, 1916. [P. S. C. 1049-H]

*Secretary.*

*Petition of the Boston and Maine Railroad for further extension of time for replacing ball signals at certain points upon its railroad.*

After consideration, good cause having been shown, — it is

*Ordered*, That the time for replacing the so-called "ball signals" at Mystic Branch crossing, Mystic Wharf, Ayer (east of station), Ayer (west of station), South Lawrence (northeast corner of triangle), South Vernon, Winchendon and North Cambridge Junction, be hereby further extended to July 1, 1917, and that the approval of the Commission be hereby given to the operation of such signals at the above named points until said date.

Attest: ANDREW A. HIGHLANDS,

APRIL 12, 1916. [P. S. C. 570]

*Secretary.*

*Petition of the Boston and Maine Railroad for further extension of time for the replacing of ball signals at certain points on its railroad.*

After consideration, good cause having been shown, — it is

*Ordered*, That the time for replacing the so-called "ball signals" at Newburyport, Peabody and South Lawrence (north-west corner of triangle) be hereby further extended to October 1, 1916, and that the approval of the Commission be hereby given to the operation of such signals at said points until said date.

Attest: ANDREW A. HIGHLANDS,

JUNE 5, 1916. [P. S. C. 570]

*Secretary.*

*Petition of the Boston and Maine Railroad for further extension of time for the replacing of ball signals at certain points on its railroad.*

After consideration, good cause having been shown, — it is

*Ordered*, That the time for replacing the so-called “ball signals” at Newburyport, Peabody and South Lawrence (northwest corner of triangle) be hereby extended to November 1, 1916, April 1, 1917, and December 1, 1916, respectively, and that the approval of the Commission be hereby given to the operation of such signals at said points until said dates.

Attest:                   ANDREW A. HIGHLANDS,  
SEPTEMBER 22, 1916.   [P. S. C. 570]                   Secretary.

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*Petition in behalf of the Boston and Maine Railroad for further extension of time for replacing ball signals at South Lawrence.*

After consideration, good cause having been shown, — it is

*Ordered*, That the time for replacing the so called “ball signals,” at the northwest corner of the triangle at South Lawrence, be hereby further extended to January 15, 1917, and that the approval of the Commission be hereby given to the operation of such signals at said point until said date.

Attest:                   ANDREW A. HIGHLANDS,  
NOVEMBER 29, 1916.   [P. S. C. 570]                   Secretary.

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*Petition of the Boston and Maine Railroad relative to the elimination of ball signals and the installation of interlocking plant at North Cambridge junction.*

After consideration, — it is

*Ordered*, That the approval of the Commission be hereby given to the elimination of ball signals at the junction of the Lexington branch and the Central Massachusetts branch of the Southern division of the railroad at North Cambridge, and the substitution therefor of interlocking signals as shown upon a plan entitled “Boston and Maine Railroad Southern Division, Lexington Branch Switches and Signals, North Cambridge, Mass.” and numbered R 207, a copy of which plan is on file in this office.

Attest:                   FREDERICK J. MACLEOD,  
JUNE 28, 1916.       [P. S. C. 1407]                   Chairman.

*Petition of the New York, New Haven and Hartford Railroad Company for approval of changes in signals in the vicinity of the Norwood Central station.*

In accordance with a vote of the Commission adopted October 1, 1915, it is, —

*Ordered*, That the approval of the Commission be hereby given to changes in signals in the vicinity of Norwood Central station, as shown on blue print marked S-218-C and dated March 31, 1916, on file in this office.

Attest:                   ANDREW A. HIGHLANDS,  
APRIL 18, 1916.       [P. S. C. 1079-H]                   Secretary.

*Petition of the New York, New Haven and Hartford Railroad Company for approval of distant signals at certain grade crossings on the Old Colony railroad.*

After consideration, — it is

*Ordered*, That the approval of the Commission be hereby given to revised plans providing for the installation of distant signals at certain grade crossings on the Old Colony railroad, on file in this office, as follows:

Medfield Junction, dated in yellow September 30, 1915.

South Framingham, dated in yellow October 23, 1915.

Fitchburg, dated in yellow September 30, 1915.

Concord Junction, dated in yellow October 1, 1915.

Walpole and Cedar, dated in yellow May 11, 1916.

Attest:                   ANDREW A. HIGHLANDS,  
OCTOBER 4, 1916.       [P. S. C. 1096-V]                   Secretary.



## STATIONS AND STATION ACCOMMODATIONS.

## RAILROAD.

*Petition of B. D. Hayes and others, residents of Great Barrington, relative to alleged discrimination in the baggage express business at the Great Barrington station of the New York, New Haven and Hartford Railroad Company.*

Upon evidence presented at a public hearing upon this petition, it appears that the New York, New Haven and Hartford Railroad Company granted, by written agreement dated December 15, 1914, to James Kelley and Michael W. Connors, doing business under the firm name of Kelley & Connors, the exclusive privilege of maintaining a public carriage stand and baggage transfer upon its station premises at Great Barrington, and thereafter excluded the petitioner, Hayes, and all others from maintaining carriage stands or soliciting baggage and express business upon the station premises. The petitioners contended that the award of the privileges described to Kelley and Connors, after competitive bidding, was illegal, because the arrangement whereby Kelley and Connors submitted a bid amounted to collusion to secure the privileges. They also contended that the company had no legal right to deny to Hayes the privilege of soliciting business upon the station premises.

The claim that the joint action of Kelley and Connors in submitting a bid rendered the bidding and subsequent agreement between them and the company illegal is not well founded, because in any event there was no legal obligation upon the company to award the privileges by competitive bidding, and it can only be held to have exercised its managerial discretion in employing this form of disposal of the station privileges. It ought to be noted, however, that Kelley and Connors presented the highest of the five bids submitted and are bound as partners in the written agreement presented in evidence.

The power of the company to grant exclusive privileges upon the station premises, which is put in question by the petitioners, was considered by the Supreme Court in *Old Colony Railroad Company v. Tripp*, 147 Mass. 35. Although, as indicated by

petitioner's counsel, the court in that case divided, the majority opinion affirmed the right of the railroad company to sell or dispose of baggage and carriage privileges. The petitioner, Hayes, is not denied access to the station to receive or to deliver passengers or baggage and is only denied the privileges of maintaining a carriage stand and soliciting business upon the station premises, privileges which, under this decision, the respondent company would have the legal right to dispose of in such way and to such persons or corporations as it chooses.

Since this decision was rendered in 1888, the statutes providing for public supervision of common carriers have changed materially. Under the so-called Public Service Commission Act of 1913 (Sts. 1913, c. 784) this Commission, no doubt, has ample authority to control the disposition of baggage and carriage privileges and regulate the contracts, rules and practices relating thereto, so far as may be necessary to secure reasonable accommodations and adequate service for the travelling public. No serious contention, however, was made in this case that there is any inadequacy of service or lack of reasonable accommodations under the arrangement now effective.

It is therefore

*Ordered*, That the petition be dismissed.

By the Commission,

ANDREW A. HIGHLANDS,

DECEMBER 30, 1916.

[P. S. C. 932]

*Secretary.*

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*Petition of Committee representing the Town of Norfolk relative to change of location of the Highland Lake station of the New York, New Haven and Hartford railroad in that town.*

The petitioners, a committee of citizens of the town of Norfolk, were authorized by vote of its inhabitants in the annual town meeting of 1913 to take such action as they deemed expedient to secure the removal of the Highland Lake station of the New York, New Haven and Hartford railroad in said town from its present location, about 1,200 feet westerly, to a point upon the easterly side of Seekonk street and upon the southerly line of the tracks of said railroad company. This matter has been a subject of agitation among the citizens of Norfolk since 1905. When it was taken up with the officials of the company in 1913

by this committee, the company's representatives made such strong representations as to the company's unfavorable financial condition as to induce the townspeople then to defer action. The petitioners now declare that consideration of the safety and convenience of the public does not permit further delay in urging that the proposed change in the location of the station be required by this Commission. See section 23, part I of chapter 463 of Acts of 1906 and section 9, part I of chapter 463 of Acts of 1906, as amended by chapter 343 of Acts of 1909.

Upon the evidence submitted it appears that Highland Lake station is a frame building situated off Campbell street upon a private way over 400 feet from the main highway. This private way is narrow and uneven and, because it is a private way, is not maintained by public authorities, with the result that it receives little attention and in winter is often impassable from accumulations of snow and slush. Many passengers use a rocky path over private property from Campbell street to the rear of the station and others use the railroad tracks to reach the station from a westerly direction. It does not appear that the respondent railroad company takes issue with the contention that public convenience if not public safety will be served by the removal of the station to Seekonk street; indeed, surveys and investigations by the company's engineers were said to give support to the claims of the petitioners. Seekonk street, an ancient thoroughfare, is the main road from Wrentham through Norfolk to Medfield, and the proposed station site is owned by the company, is convenient and safe of access, near to the street, which is lighted, and in close proximity to the freight siding now serving this part of Norfolk.

The railroad company estimates that the cost of relocation, including repairs to the station to fit it for removal, concrete foundation and grading, would be \$3,549, and suggests that this expenditure, in view of other necessary expenditures of this character, might not be warranted at the present time. While this estimate seems large for the work contemplated, the Commission is of the belief that such an expenditure would be justified upon the facts, which stand uncontradicted, in this case. The approaches to the present station are inadequate and at times unsafe for travel, and the location of the station is such that the only remedy is removal to a more accessible site.

It was suggested that some consideration had been given by the railroad company to the consolidation of the stations of Norfolk

and Highland Lake and the erection of a new station at a point between the two present locations, but this suggestion as presented was somewhat intangible, and with the necessity apparent upon its face of large expenditures to provide approaches alone from the nearest public highways, it cannot be held to furnish adequate reason further to defer action in this matter.

The townspeople of Norfolk and the patrons of the railroad have shown an uncommon and commendable spirit of forbearance in postponing the bringing of this proceeding, and, with the cause of complaint admitted and the necessity of eventual action conceded, there should not be further delay.

It is therefore

*Ordered*, That the New York, New Haven and Hartford Railroad Company proceed to remove its Highland Lake station in the town of Norfolk from its present location, about twelve hundred feet westerly, to a point upon the southerly line of its track location, at or near the easterly line of Seekonk street, a public highway in said town.

By the Commission,

ANDREW A. HIGHLANDS,

AUGUST 10, 1916.

[P. S. C. 1271]

*Secretary.*

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#### STREET RAILWAY.

*Investigation of transportation facilities and transfer privileges at the Dudley Street Terminal of the Boston Elevated Railway Company.*

Chapter 61 of the Resolves of 1915 directed the Public Service Commission, among other things, to investigate the transportation facilities at the Dudley street station of the Boston Elevated Railway Company.

From testimony offered at the public hearings on the said resolve and from observations made by the Commission, it appears that the company's present train service to and from the Dudley street station is inadequate for present demands of travel during the rush hours. In order to provide additional accommodations for passengers on the elevated trains operated between Sullivan square and Forest Hills by way of the Washington street tunnel, and between Sullivan square and Dudley street by way of Atlantic avenue, the company, at the recommendation of the



Commission, has agreed to increase the number of cars on these trains from six cars to seven cars during the morning rush hours, and from seven to eight cars during the evening rush hours, such change to be made effective on February 5, 1916.

The Commission is also of the opinion, for reasons stated in its report to the legislature on said resolve,<sup>1</sup> that the present facilities at the Dudley street station for the transfer of passengers to and from the surface cars from and to the elevated trains, especially at the east loop during rush hours, are inadequate, and that certain alterations in the station structure and tracks and a rearrangement of service upon certain surface lines should be made, in order to permit of a more efficient method of operation and a better utilization of existing facilities at the Dudley street station. It is therefore

*Ordered,* That the Boston Elevated Railway Company proceed to make the alterations hereinafter described at the east loop of the Dudley street terminal station.

The iron fence and other structures, except the stairways, in the central area, as well as the obstructions in the passageways leading to the north-bound Elevated platform, shall be removed. The area between the rails for a distance of at least eighteen (18) inches from the gauge of the inside rail shall be covered with planking level with the top of the rail. The stairway leading from the southerly foot-bridge to the incline shall be closed, so that outbound passengers shall use the stairways leading to the central area. Inbound passengers shall then leave the cars by the platform on the outer side of the loop and outbound passengers shall board the cars from the area inside the loop. An indicator shall also be installed and operated during the evening rush hours, in order to show the berth at which each car shall stop.

And it is further

*Ordered,* That the said company proceed to install a connection by a facing point switch between the westerly track in Warren street and the most northerly track on the surface level at the Dudley street station, and when completed shall rearrange the present method of operation so that surface car lines from the north, that now loop back on the surface level of the station, shall be diverted at the intersection of Washington and Warren streets, so as to enter the station from Warren street over this new connection and loop back by way of Washington street.

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<sup>1</sup> For full text of report on chapter 61, Resolves of 1915, see page 445.

And it is further

*Ordered*, That the company, during the period from 4.45 P.M. to 6.30 P.M. daily, shall furnish such additional service on its surface lines in Washington street between Dudley street and Egleston square as will, in the judgment of the Commission, adequately provide for present demands of travel between those points during the said period.

And it is further

*Ordered*, That upon the completion of the alterations in the elevated station at Egleston square and the installation of the surface track facilities, shown in the plan numbered 35429 filed with and approved by the Commission under date of January 18, 1916, the said company shall divert the line of surface cars which is now operated between Mattapan square and the Dudley street station by way of Blue Hill avenue and Warren street, so that said line shall be operated between Mattapan square and the Egleston square station, and shall provide such additional service between Franklin Park and the Dudley street station by way of Warren street as may become necessary by reason of the diversion of the Mattapan line.

Attest:                   ANDREW A. HIGHLANDS,  
JANUARY 26, 1916.     [P. S. C. 1020]                   *Secretary.*

*Petition of the Boston Elevated Railway Company for approval of certain traffic signs at the Dudley street station in Boston.*

After consideration, — it is

*Ordered*, That the approval of the Commission be hereby given to the installation of certain traffic signs at the Dudley street station in Boston, one to be placed over the loading platform, inside of the east loop, to read "Loading Platform", and another to be placed on the unloading platform, on the outside of said loop, to read "Passengers Are Requested to Board Cars Inside the Loop", with an index hand pointing to the loading platform.

Attest:                   ANDREW A. HIGHLANDS,  
JULY 7, 1916.         [P. S. C. 1020]                   *Secretary.*

*Petition of the Boston Elevated Railway Company for approval of plan showing relocation of post in the Dudley street station in Boston.*

The annexed plan, numbered 11878, showing proposed relocation of post T-74-A in the Dudley Street station (lower level) of the Boston Elevated Railway Company in the city of Boston, is hereby approved.

FREDERICK J. MACLEOD,  
EVERETT E. STONE,  
JOHN F. MEANEY,  
JOSEPH B. EASTMAN,  
CHARLES A. RUSSELL,

MARCH 16, 1916. [P. S. C. 1274] Commissioners.

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*Petition of the Boston Elevated Railway Company for approval of plan showing changes in its Egleston square elevated station in Boston.*

The annexed plan, numbered 35428, showing changes in the Egleston square elevated station of the Boston Elevated Railway Company in the city of Boston, necessary for a connection with its proposed prepayment area, said plan being a modification or change of plan numbered 28390, approved by the board of railroad commissioners November 15, 1906, is hereby approved, consent being given to the changes shown.

FREDERICK J. MACLEOD,  
EVERETT E. STONE,  
JOHN F. MEANEY,  
JOSEPH B. EASTMAN,  
CHARLES A. RUSSELL,

JANUARY 13, 1916. [P. S. C. 1206] Commissioners.

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*Petition of the Boston Elevated Railway Company for approval of plan numbered 11881 showing location of post on Columbus avenue near Egleston square in the city of Boston.*

The annexed plan numbered 11881 showing proposed location of a post on the easterly sidewalk of Columbus avenue near Egleston square for the support of the escalator from the proposed prepayment area to the existing Egleston square elevated

station in Boston, being a modification or change of plan numbered 35429, approved by this Commission January 18, 1916, is hereby approved.

FREDERICK J. MACLEOD,  
EVERETT E. STONE,  
JOHN F. MEANEY,  
JOSEPH B. EASTMAN,  
CHARLES A. RUSSELL,

APRIL 11, 1916.

[P. S. C. 1285]

Commissioners.

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*Petition of the Boston Elevated Railway Company for approval of plans numbered 28619, 28620, 28621 and 28622 showing form and method of construction of proposed enlargement of and changes in its Egleston square elevated station in the city of Boston.*

The annexed plans, numbered 28619, 28620, 28621 and 28622, showing form and method of construction of proposed enlargement of and changes in the Egleston square elevated station of the Boston Elevated Railway Company in the city of Boston, said plans being a modification or change of plan numbered 28390, approved by the Board of Railroad Commissioners on November 15, 1906, and of plan numbered 35429, approved by the Public Service Commission on January 18, 1916, are hereby approved, consent being given to the changes shown.

FREDERICK J. MACLEOD,  
EVERETT E. STONE,  
JOHN F. MEANEY,  
JOSEPH B. EASTMAN,  
CHARLES A. RUSSELL,

JUNE 7, 1916.

[P. S. C. 1371]

Commissioners.

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*Petition of the Mount Hope Citizens Association et al. relative to improved facilities at the Forest Hills Terminal of the Boston Elevated Railway Company in the city of Boston.*

At a public hearing upon the above petition, complaint was made of congestion during the rush hours, due to insufficient outbound track and platform facilities on the ground level at the Forest Hills Terminal of the Boston Elevated Railway Company, and a plan to relieve the same was presented by the petitioners.



The plan provided for an additional track in Washington street, westerly of the present elevated structure, for loading outbound passengers, and also provided additional platform area.

Vehicular traffic in that part of Washington street immediately under the station is to be cut off, but to compensate for this it was proposed to acquire a strip of land adjacent to Washington street for highway purposes. The land desired was the property of the Old Colony Railroad Company, which is leased to the New York, New Haven and Hartford Railroad Company. After several conferences with counsel, representing the petitioners, the Boston Elevated Railway Company and representatives of the city, it was decided that the city take the land by eminent domain and this has been done.

Objections have been raised that the station was originally intended to be only a temporary station and that any such relief as was proposed by this plan was not only a makeshift but would serve to delay the erection of a new and more commodious terminal station in another location.

The Commission believes, however, that the situation is one that calls for immediate relief and that such relief can be most quickly obtained by a plan embodying the general features here outlined.

For the Commission,

FREDERICK J. MACLEOD,

JUNE 27, 1916. [P. S. C. 816]

Chairman.

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*Petition of the Boston Elevated Railway Company for approval of plan No. 28698, showing changes in the Forest Hills station in Boston.*

The annexed plan, marked "Boston Elevated Railway, Elevated & Subway Construction, Forest Hills Station, Enlargement of Surface Loading Platform, Aug. 1915, Plan No. 28698," is hereby approved.

FREDERICK J. MACLEOD,

EVERETT E. STONE,

JOHN F. MEANEY,

JOSEPH B. EASTMAN,

CHARLES A. RUSSELL,

OCTOBER 25, 1916. [P. S. C. 1425]

Commissioners.

*Petition of the Boston Elevated Railway Company for certificate preliminary to the operation of an escalator in the Harvard station of the Main street subway in Cambridge.*

Examination having been made of an escalator installed in the Harvard station of the Main street subway in Cambridge in accordance with an order of this Commission issued under date of November 20, 1914 (P. S. C. 423), — it is

*Ordered*, That the Commission hereby certify that the escalator installed in the Harvard station of the Main street subway in Cambridge appears to be constructed in accordance with plans approved by the Commission and to be in a safe condition for operation.

Attest:           ANDREW A. HIGHLANDS,  
FEBRUARY 5, 1916.   [P. S. C. 1255]           Secretary.

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*Petition of the Boston Elevated Railway Company for approval of use of certain space in the Dorchester tunnel in Boston by the William Filene's Sons Company.*

After consideration, — it is

*Ordered*, That the approval of the Commission be hereby given to the proposed use by the William Filene's Sons Company, under a lease from the Boston Elevated Railway Company, of a certain space in the Dorchester tunnel in Boston, leased to said Boston Elevated Railway Company, said space being between the lobby floor and the roof of the tunnel, as shown on a plan marked "Boston Elevated Railway, Elevated & Subway Construction, Dorchester Tunnel, Washington Station, Chamber Level", dated June, 1916 and numbered 36032, on file with the petition.

Attest:           ANDREW A. HIGHLANDS,  
OCTOBER 27, 1916.   [P. S. C. 1489]           Secretary.

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*Petition of the Boston Elevated Railway Company for approval of the establishment of a transformer station in the Dorchester Tunnel at "South Station Under" in Dewey square, Boston.*

After consideration, — it is

*Ordered*, That, under the provisions of chapter 741 of the Acts of 1911 and of Article 11 of the contract between the City of

Boston and the Boston Elevated Railway Company for the use of the Dorchester Tunnel, the approval of the Commission be hereby given to the use of a chamber in the Dorchester Tunnel east of, and separated by a suitable wall from, the entrance lobby of the tunnel station at Dewey square, to be known as "South Station Under," for the purpose of installing and operating necessary electrical or other apparatus for a transformer station for the improvement of the power distribution system of the company and for the supply of electric power to the Dorchester Tunnel, as shown on a plan marked "Boston Elevated Railway Elevated & Subway Construction Dorchester Tunnel Transformer Room", dated February, 1916, and numbered 14017.

Attest:                   ANDREW A. HIGHLANDS,  
FEBRUARY 18, 1916.   [P. S. C. 1265]                   Secretary.

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*Petition of residents of Billerica for erection and maintenance of a waiting station or shelter on the Bay State street railway on the Woburn road in the Nuttings Lake Park section of that town.*

*Memorandum.*

At the public hearing it appeared that the petitioners did not ask for an expensive structure and would evidently be satisfied with a shelter that would afford them protection from the weather. Following the hearing, an investigation was made by the inspection department of the Commission. As a result of a conference which was had with a representative of the railway company, the company, at the suggestion of the Commission, agreed to erect a suitable shelter. Having since obtained permission from the selectmen of Billerica, the company has accordingly erected, on the side of the Woburn road, a shelter of the type recommended by the inspection department, which is satisfactory to the petitioners and, in the opinion of the Commission, meets the present requirements of the patrons of the street railway in the Nuttings Lake Park section. It is therefore unnecessary for the Commission to make any order at this time.

Attest:                   ALLAN BROOKS,  
JULY 19, 1916.       [P. S. C. 1151]                   Assistant Secretary.

*Petition of residents of Billerica for erection and maintenance of a waiting station or shelter by the Middlesex and Boston Street Railway Company on the Boston road in the Nuttings Lake Park section of that town.*

*Memorandum.*

At the public hearing it appeared that the petitioners did not ask for an expensive structure and would evidently be satisfied with a shelter that would afford them protection from the weather. Following the hearing, an investigation was made by the inspection department of the Commission. As a result of a conference which was had with the representative of the railway company, the company, at the suggestion of the Commission, agreed to erect a suitable shelter. Having since obtained permission from the selectmen of Billerica, the company has accordingly erected, on the side of the Boston road, opposite the Middlesex turnpike, a shelter of the type recommended by the inspection department, which is satisfactory to the petitioners and, in the opinion of the Commission, meets the present requirements of the patrons of the street railway in the Nuttings Lake Park section. It is therefore unnecessary for the Commission to make any order at this time.

Attest:

ALLAN BROOKS,

JULY 19, 1916.

[P. S. C. 1209]

*Assistant Secretary.*



SUNDAY TRAINS AND BOATS.

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*Petition of the Boston and Maine Railroad for authority to operate Sunday trains.*

After consideration, — it is

*Ordered*, That the Boston and Maine Railroad be hereby authorized to run on the Lord's day during the period ending December 31, 1916, the trains specified in the petition dated June 16, 1916, and accompanying schedules, subject to the following conditions: —

1. No train shall be run as an excursion train.

2. The rates of fare on the passenger trains shall in no case be less than those charged on regular week-day trains between the same stations.

All previous orders authorizing the running of trains on the Lord's day on the Boston and Maine railroad are hereby revoked, such revocation to take effect when the above named schedules are put in force.

Attest:                      ANDREW A. HIGHLANDS,

JUNE 20, 1916.            [P. S. C. 1022-C]

*Secretary.*

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By similar orders, schedules of regular Sunday trains, deemed to be necessary for the public accommodation, have been authorized on the Boston and Albany railroad, the Boston, Revere Beach and Lynn railroad [P. S. C. 1307], the Central Vermont railway [P. S. C. 1454], the Hoosac Tunnel and Wilmington railroad [P. S. C. 1402] and the New York, New Haven and Hartford railroad [P. S. C. 1011-B, 1011-C].

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*Petition of the Merchants and Miners Transportation Company for authority to run steamships on the Lord's day.*

It appearing to the Commission, after consideration, that the public necessity, convenience, health and welfare may reasonably require, within the meaning and intent of the statute, the run-

ning of steamships within the waters of the Commonwealth on the Lord's day, — it is

*Ordered*, That authority be hereby given to the Merchants and Miners Transportation Company to run its steamships within the waters of the Commonwealth on the Lord's day during the year ending June 30, 1917; subject, however, to the following conditions: —

1. Within the jurisdiction covered by this order, no intoxicating liquors shall be sold or furnished and no disorderly conduct, gaming or other sport be permitted either upon said steamships or upon any premises owned or controlled by the company.

2. The Commission reserves the right to revoke the authority hereby given at any time in its discretion without previous notice to said company.

Attest:                      ANDREW A. HIGHLANDS,

JUNE 4, 1916.            [P. S. C. 1016-L]

*Secretary.*

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By similar orders, schedules of regular Sunday boats, deemed to be necessary for the public accommodation, have been authorized as follows: —

Boston and Gloucester Steamship Company, Boston, Nahant and Pines Steamboat Company, Boston and Yarmouth Steamship Company, Cape Cod Steamship Company, Captain E. W. Dixon of the Steamer King Philip, Eastern Steamship Corporation (Calvin Austin, Receiver), Nantasket Beach Steamboat Company, New Bedford and Martha's Vineyard Steamboat Company.

The Scituate Steamboat Company, C. H. Waterman, Proprietor. [P. S. C. 1016]

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*Petition of the Quartermaster General of the Commonwealth for special Sunday trains and boats.*

After consideration, — it is

*Ordered*, That the New York, New Haven and Hartford Railroad Company be hereby authorized to run special trains from Lowell, Fitchburg and Boston to New Bedford on Sunday, August 6, 1916, and special return trains from New Bedford to Lowell, Fitchburg and Boston on Sunday, August 20, 1916, in connection with the movement of the Sixth Infantry, Massachusetts National Guard, to and from its annual encampment.

It is

*Further ordered*, That the New Bedford, Martha's Vineyard and Nantucket Steamboat Company be hereby authorized to run a special boat from New Bedford to Edgartown on Sunday, August 6, 1916, and a return boat from Edgartown to New Bedford on Sunday, August 20, 1916, in connection with said movement of the Sixth Infantry, Massachusetts National Guard, to and from its annual encampment.

Attest:                   ANDREW A. HIGHLANDS,  
AUGUST 3, 1916.       [P. S. C. 1010-S, 1016-J]                   *Secretary.*

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*Petition of the Young Men's Catholic Total Abstinence Society of New Bedford for permission for a special Sunday train from New Bedford to Pawtucket and return.*

After consideration, — it is

*Ordered*, That the New York, New Haven and Hartford Railroad Company be hereby authorized to run over its lines in Massachusetts a special train from New Bedford to Pawtucket, Rhode Island, and return, on Sunday, October 1, 1916, for the exclusive use of the Young Men's Catholic Total Abstinence Society of New Bedford, for the purpose stated in the petition; provided that said train shall not be run as a public excursion train, and that the rates of fare shall not be less than those charged on regular week-day trains.

Attest:                   ANDREW A. HIGHLANDS,  
SEPTEMBER 26, 1916.   [P. S. C. 1010-V]                   *Secretary.*

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A number of other special Sunday trains have been authorized in the course of the year, for reasons which were deemed to be good and exceptional.

## MISCELLANEOUS.

## STREET RAILWAYS EARNING FIVE PER CENT DIVIDENDS.

*Communication.*

*To the Honorable the Bank Commissioner of the Commonwealth,  
State House, Boston, Massachusetts.*

DEAR SIR:— Pursuant to the provisions of Acts of 1908, chapter 590, Part V, section 68, *Fifth*, and amendments thereof, we certify and transmit the following list of street railway companies incorporated in this Commonwealth which appear from the returns made by them to have annually earned and properly paid without impairment of assets or capital stock an amount in dividends equal to at least five per cent upon their outstanding capital stock in each of the five preceding years:

Boston and Revere Electric Street Railway Company,  
East Middlesex Street Railway Company,  
East Taunton Street Railway Company,  
Fitchburg and Leominster Street Railway Company,  
Holyoke Street Railway Company,  
Springfield Street Railway Company,  
Union Street Railway Company,  
West End Street Railway Company,  
Worcester Consolidated Street Railway Company.

We also certify that the bonds of the Boston Elevated Railway Company and of the Milford and Uxbridge Street Railway Company are legal investments of savings banks and institutions for savings by virtue of the provisions of chapter 273 of the Acts of 1915.

The statutes cited above, as construed by this Commission and its predecessor, do not require the Commission to determine whether the provisions for maintenance and depreciation made by street railway companies as shown by their returns have or have not been adequate.

For the Commission,

FREDERICK J. MACLEOD,

DECEMBER 13, 1916.

[P. S. C. 1618]

*Chairman.*



## APPROVAL OF CORPORATE NAME.

*Petition of purchaser of the railway and property of the Norton and Taunton Street Railway Company for approval of corporate name.*

It appearing that the petitioner is the purchaser of the railway and property of the Norton and Taunton Street Railway Company at a sale made by receiver pursuant to an order of the Supreme Judicial Court for Suffolk County and that application has been made to the Secretary of the Commonwealth for a charter under the name of the Norton, Taunton and Attleborough Street Railway Company, said name not being one in use by any other street railway company in the commonwealth nor, in the judgment of the Commission, so similar thereto as to be likely to be mistaken for any other name, — it is

*Ordered,* That the approval of the Commission be hereby given to the name as above stated.

Attest:                   ANDREW A. HIGHLANDS,  
DECEMBER 21, 1916.   [P. S. C. 1277]                   Secretary.

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## OPERATION OF CARS — STREET RAILWAY.

*Petition of the Board of Aldermen of Springfield for approval of rules governing the operation of street railway cars in that city.*

After notice and hearing and full consideration, — it is

*Ordered,* That the approval of the Commission, under the provisions of section 74 of part III, chapter 463 of the Acts of 1906, be hereby given to sections 12 and 17 of rules for the use of vehicles in the city of Springfield, which govern the operation of street railway cars, adopted by the Board of Aldermen of said city November 15, 1915.

Attest:                   ANDREW A. HIGHLANDS,  
FEBRUARY 4, 1916.   [P. S. C. 1202]                   Secretary.

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## SALE OF PLEASURE RESORTS.

*Petition of the Bay State Street Railway Company for approval of the sale of certain pleasure resorts.*

Following the findings in the Bay State street railway rate case, decided August 31, 1916, in which the Commission sug-

gested, under the heading "Unused Real Estate", that it seemed probable that some of the park property owned by the company could be sold to advantage, the Bay State Street Railway Company, on October 9, 1916, filed with the Commission a petition requesting approval of the sale of certain pleasure resorts located in the towns of Freetown, Dighton, Westwood, Methuen and Tyngsborough and in the city of Gloucester, which have, in its opinion, ceased to be useful or valuable in connection with its railway and business. A public hearing was held on the petition on November 24, 1916.

After consideration, — it is

*Ordered*, That under the provisions of chapter 463 of the Acts of 1906, section 34, part III, as amended by chapter 133 of the General Acts of 1915, the approval of the Commission be hereby given to the sale by the Bay State Street Railway Company of certain parcels of land, including the buildings thereon and appurtenances thereto, acquired and held by said company as pleasure resorts, as follows: —

Lakeside Park in the town of Freetown.

Dighton Rock Park in the town of Dighton.

Westwood Park in the town of Westwood.

Glen Forest Park in the town of Methuen.

Mountain Rock Park in the town of Tyngsborough.

Long Beach Resort in the city of Gloucester.

Attest:                   ANDREW A. HIGHLANDS,  
DECEMBER 14, 1916.   [P. S. C. 1534]                   Secretary.

#### RELIEF ASSOCIATIONS.

*Petition of the Union Street Railway Employees' Relief Association  
for approval of amendment to its by-laws.*

After consideration, — it is

*Ordered*, That the approval of the Commission be hereby given to an amendment of sections 3 and 4 of Article XI of the by-laws of the Union Street Railway Employees' Relief Association, duly made at a meeting of said association held on May 5, 1916, a copy of which amendment is on file with the petition.

Attest:                   ANDREW A. HIGHLANDS,  
NOVEMBER 17, 1916.   [P. S. C. 1378]                   Secretary.

## REMOVAL OF SNOW AND ICE.

*Petition of the Interstate Consolidated Street Railway Company for amendment to the regulations established by the Superintendent of Public Works of the City of Attleborough for removing the snow and ice from certain streets in said city.*

After notice and hearing, it appearing that the Superintendent of Public Works of the City of Attleborough has established certain regulations for the removal of snow and ice from the tracks of street railway companies in that city, and it further appearing that by agreement of parties the original order of said Superintendent of Public Works has been modified, — it is

*Ordered*, That said regulations be amended so as to read as follows: —

All snow and ice cleared by any street railway company from the space between its rails, between its tracks, and for a distance of eighteen (18) inches on either side of its tracks, or an amount equal to the above named quantity, shall be removed within twenty-four hours from the following streets of the city of Attleborough: —

Emory street, from Pleasant to Forest street;

Pleasant street, from its junction with Park street to Starkey avenue;

County street, North Main street to Dennis street;

Pine street, Park street to Orange street;

Orange street, Pine street to South Main street;

South Main street, from Orange street to Lamb street;

North Main street, from Park street to Simmons Crossing, so called, near Elizabeth street;

Newport avenue, at the turnout near the school house.

On all streets in the city where street railway tracks are laid, the snow and ice cleared from said tracks by the street railway company owning said tracks, and from a space eighteen (18) inches in width on either side thereof, shall be levelled within twelve hours of the time said snow and ice is cleared therefrom in such manner as to leave said streets safe for travel.

Attest:                   ANDREW A. HIGHLANDS,

DECEMBER 11, 1916.     [P. S. C. 1439]

*Secretary.*

## ANNUAL RETURNS.

*Order of the Commission relative to the filing of returns by common carriers.*

At the annual meeting of the Association of American Railway Accounting Officers, held April. 28, 29 and 30, 1915, the following resolutions were adopted: —

*Resolved*, It is the sense of this Association that it is desirable that the fiscal year — for reporting to federal and state railroad commissions — be changed as rapidly as possible to terminate on December 31st, instead of June 30th.

*Further resolved*, That the Executive Committee be empowered to deal with the federal and state commissions regarding this matter, either through the Association or otherwise, as may seem best.

Similar resolutions were adopted by the United States Independent Telephone Association and also by the American Electric Railway Association. From information received it was evident that the proposed change was favored by a large majority of the chief executive officers representing the various public utilities of the country.

As suggested in these resolutions, the matter was referred to the Interstate Commerce Commission, which, before taking final action, communicated with the various state commissions. The change was favored by the National Association of Railway Commissioners at its annual meeting in Washington last November and the Interstate Commerce Commission, on November 24, 1916, issued the following order: —

*It is ordered*, That all common carriers subject to the provisions of the act to regulate commerce, as amended, and the owners of all railroads engaged in interstate commerce as therein defined, be, and they are hereby, required hereafter to file in the office of the Commission on or before the 31st day of March in each year, reports covering the period of twelve months ending with the thirty-first day of December preceding said date, giving the particulars heretofore called for in the annual reports required by the Commission of said carriers and owners of railroads.

Under these circumstances, to secure uniformity of practice, it has seemed to this Commission that December 31 should be made the end of the fiscal year for all companies under its jurisdiction, and it will ask the General Court to amend existing statutes to conform to this change. In the meantime, in view of the action



already taken by the Interstate Commerce Commission and by other state commissions, this Commission has deemed it advisable, in the exercise of its general powers, to require every company under its jurisdiction to file a report for the year ended December 31, 1916, giving the particulars heretofore called for in the annual returns, and will supply the necessary forms for this purpose in the near future. This report will include six months' business which now appears in the report rendered as of June 30, 1916, and in view of the fact that many of the adjusting entries made at the close of the last fiscal year, viz.: June 30, 1916, undoubtedly covered a period of more than six months, it will therefore be necessary to adjust said entries and pro rate them so that each month will bear its proportionate share of the charge and no more. A report for a full year is deemed advisable at this time, as it will insure a continuity of statistics which will be comparable.

It is therefore

*Ordered*, That all persons, firms, corporations, associations and joint stock associations, or companies subject to the jurisdiction of this Commission shall file in the office of the Commission, on or before March 31, 1917, reports, to be made on forms supplied for the purpose, covering the period of twelve months ended with the thirty-first day of December, 1916, giving the particulars heretofore called for in the annual returns required by the Commission.

By the Commission,

ANDREW A. HIGHLANDS,

DECEMBER 30, 1916.

[P. S. C. 1644]

*Secretary.*

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#### CAR SPRINKLING.

*Petition of the Bay State Street Railway Company for approval of operation of sprinkler cars in Lawrence.*

After consideration, it appearing that a contract has been executed by the American Car Sprinkler Company and the Bay State Street Railway Company under date of April 6, 1916, providing for the operation of sprinkler cars in the city of Lawrence, — it is

*Ordered*, That the approval of the Commission under section 37 of part III of chapter 463 of the Acts of 1906, be hereby given to said contract, upon the understanding that the manner in

which the said sprinkler cars are operated shall be subject to supervision and further regulation by the Commission from time to time as the public interest may require; and that this order shall be subject to revocation at any time.

Attest:           ANDREW A. HIGHLANDS,  
APRIL 8, 1916.   [P. S. C. 1315]           Secretary.

During the year additional orders have been issued approving contracts for the operation of sprinkler cars as follows: —

*Bay State Street Railway.*

Fall River, May 10, 1916 — American Car Sprinkler Company. [P. S. C. 1315-D]

Malden, April 14, 1916 — American Car Sprinkler Company. [P. S. C. 1315-B]

Salem, April 22, 1916 — City of Salem. [P. S. C. 1315-C]

*Boston Elevated Railway.*

Malden, April 15, 1916 — American Car Sprinkler Company. [P. S. C. 1321]

Somerville, June 8, 1916 — American Car Sprinkler Company. [P. S. C. 1321-B]

*Union Street Railway.*

New Bedford, July 25, 1916 — American Car Sprinkler Company. [P. S. C. 1358]

FIRE EXTINGUISHERS.

*Application of the New York, New Haven and Hartford Railroad Company for approval of fire extinguisher.*

After consideration, — it is

*Ordered,* That the Commission hereby approve the use of the Pyrene fire extinguisher upon cars operated over the lines of the New York, New Haven and Hartford railroad, in accordance with the application dated January 20 and January 29, 1916.

Attest:           ANDREW A. HIGHLANDS,  
FEBRUARY 4, 1916.   [P. S. C. 1248]           Secretary.

*Petition of the New York, New Haven and Hartford Railroad Company and the Central New England Railway Company for approval of the use of the J-M fire extinguisher.*

After consideration, — it is

*Ordered,* That the Commission hereby approve the use of the J-M fire extinguisher upon cars operated over the lines of the New York, New Haven and Hartford Railroad Company and the Central New England Railway Company within the commonwealth of Massachusetts, in accordance with petition dated November 27, 1916.

Attest:                   ANDREW A. HIGHLANDS,  
DECEMBER 6, 1916.   [P. S. C. 1599]                   Secretary.

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SPARK ARRESTERS.

*Petition of the New York, New Haven and Hartford Railroad Company for approval of installation and maintenance of spark arresters.*

After consideration, — it is

*Ordered,* That the approval of the Commission under the provisions of chapter 431 of the Acts of 1907 be hereby given to the installation and maintenance on locomotives of the New York, New Haven and Hartford railroad of spark arresters of the type submitted in the petition.

Attest:                   ANDREW A. HIGHLANDS,  
MAY 13, 1916.       [R.R. C. 6682]                   Secretary.

## SPECIAL REPORTS TO THE GENERAL COURT.

REPORT OF THE PUBLIC SERVICE COMMISSION  
UNDER THE RESOLVE OF THE GENERAL COURT  
PROVIDING FOR A STUDY OF THE STATUTES  
RELATIVE TO THE REPAIR AND MAINTENANCE  
OF PUBLIC WAYS AND PLACES IN WHICH STREET  
RAILWAYS ARE LOCATED.

*To the Honorable the Senate and House of Representatives of the Commonwealth of Massachusetts.*

Chapter 35 of the Resolves of 1915 is as follows: —

*Resolved*, That the subject-matter contained in Senate Document No. 247 and House Documents Nos. 1175 and 1316 of the present year be hereby referred to the public service commission, which shall make a study of the existing statutes relative to the repair and maintenance of public ways and places in which street railways are located, and report to the next general court on or before the second Wednesday in January its conclusions with reference to the need of any changes in said statutes, with drafts of bills embodying any recommendations which it may make.

Under this resolve the Commission gave a public hearing on November 4, 1915. Every city, town and street railway company in the commonwealth was notified and was furnished with a statement indicating in some detail the scope of the investigation contemplated by the resolve and the questions involved. Much valuable information has also been secured by correspondence, — from the companies and the municipalities and from public authorities in other states.

The resolve directs the Commission to “make a study of the existing statutes relative to the repair and maintenance of public ways and places in which street railways are located” and to consider in particular the changes proposed in three bills, introduced at the last session of the general court. To understand the specific questions which they raise and the more general questions raised by the resolve as a whole, a knowledge of the history of the existing statutes is essential.



## HISTORY OF EXISTING STATUTES.

## EARLY LAWS.

The first street railway charters in Massachusetts were granted in 1853 to the Metropolitan Railroad Company of Boston and the Cambridge Railroad Company. In both cases the special act of incorporation required the company to maintain and keep in repair the portion of the streets and bridges occupied by its tracks. This was a logical provision, for the cars were drawn by horses and the wear and tear upon the pavement between the rails was severe. In 1864 a similar duty was imposed by a general law which required every street railway corporation to "maintain and keep in repair such portions of the streets, roads and bridges, respectively, as are occupied by its tracks, and eighteen inches on each side thereof, to the satisfaction of the superintendent of streets, the street commissioner or the surveyors of highways" (St. 1864, c. 229, § 18). In 1866 the "eighteen inches" on each side of the tracks was increased to "three feet" (St. 1866, c. 286, § 1), but in the codification of the street railway laws in 1871 the requirement was limited, in the case of *paved* streets, roads and bridges, to the portion occupied by the tracks, and, in the case of similar *unpaved* public ways, to the portion occupied by the tracks and "eighteen inches on each side thereof" (St. 1871, c. 381, § 21). Finally, in the Public Statutes of 1882 it took the following form (c. 113, § 32): —

SECTION 32. Every street railway company shall keep in repair, to the satisfaction of the superintendent of streets, street commissioner, road commissioners or surveyors of highways, the paving, upper planking or other surface material of the portions of streets, roads, and bridges occupied by its tracks; and if such tracks occupy unpaved streets or roads, shall, in addition, so keep in repair eighteen inches on each side of the portion occupied by its tracks, and shall be liable for any loss or injury that any person may sustain by reason of the carelessness, neglect, or misconduct of its agents and servants in the construction, management and use of its tracks.

From an early date street railway companies were also required to conform to such regulations as the local authorities might impose relative to the removal of snow and ice. This requirement, as it appeared in the Public Statutes of 1882, was as follows (c. 113, § 27): —

SECTION 27. The board of aldermen or selectmen may from time to time establish such regulations as to the rate of speed, mode of use of the tracks, and removal of snow and ice therefrom within their city or town, as the interest and convenience of the public may require.

#### THE SPECIAL COMMITTEE OF 1898.

These statutory provisions remained in force without amendment until 1898, when the special committee created by the previous general court to consider the relations between street railway and municipal corporations made its report. The three members of this special committee were Charles Francis Adams of Lincoln, William W. Crapo of New Bedford and Elihu B. Hayes of Lynn. Among other things, they gave careful consideration to the question of street repair, reaching the conclusion that the divided responsibility for the care of the streets resulted in continual jealousies, misapprehensions and disputes and that it would be better for the municipalities to assume full control, meet all charges for paving, for street cleaning, for snow removal, etc., and receive from the companies a net annual payment in lieu of work in kind. The comments of the special committee are worthy of quotation in full: —

The Committee is clearly of the opinion that it would be conducive to a better state of affairs were the municipalities to assume full control of the streets, meeting all charges for paving, for street cleaning, etc., and receiving therefor from the companies a net annual money payment in lieu of work in kind. This would be in the nature of a commutation, — a pavement and cleaning tax to be paid by the company in consideration of the special provision made in streets for its exclusive use. While clear as to the expediency of this readjustment of burdens, the Committee has had great difficulty in devising a satisfactory basis on which to recommend it. The cost of paving, etc., is included in the accounts of the street railway companies under the general head of "(35) Repair of Roadbed and Track," and the items for paving are not separated from others. On many country roads, also, the obligation to pave is nominal; in city thoroughfares it is heavy; while in other cases the amount of work to be done and expense incurred depend on the terms of particular locations. Again, the cost of removing ice and snow is another obligation which pertains distinctly to the care of streets. The tracks of the street railways are in the nature of sidewalks and footpaths. In winter the public convenience demands that they should be immediately broken out, and kept constantly clear. In the case of the track, as in that of the sidewalk, the snow and ice, when removed, are necessarily thrown, temporarily at least, upon the travelled way. If they cause an obstruction, it is obviously the duty of whoever is legally responsible for the condition of the travelled way to

remove them; and for that condition the municipality is, of course, responsible. This has proved a fruitful source of misunderstanding between the companies and the town and city governments ever since the street railway system originated; and the singular spectacle has not infrequently been witnessed of one gang of men, in private employ, shovelling snow from a track, while another gang of men, in public employ, shovelled it immediately back. In this case two propositions seem to the Committee equally clear: first, that it is the business of the city or town to keep its streets properly clear of obstructions; and, secondly, that, under the circumstances, the street railway companies should, in this specific instance, compensate them for so doing. Yet, in the matter of removing ice and snow it is, under the New England climatic conditions, difficult to reach any rule of compensation, the expense actually incurred year by year varies so greatly. In certain years it is nominal, in others it is extremely heavy. Nevertheless, in the opinion of the Committee, some rule should be established.

After a careful study of such data and statistics as could be found bearing on this subject, the Committee has formulated certain provisions in the draft of a proposed act herewith submitted. They establish the legal obligations of the parties, restoring to the municipalities, in so far as may be, the full control of their public ways, and making them solely responsible for the condition of those ways, both as respects pavement and freedom from obstruction; and, on the other hand, so far as the street railway companies are concerned, the present obligations for labor or pavement work are commuted into fixed money payments, in the nature of a tax. While the fairness of this commutation as respects amount, etc., cannot be demonstrated mathematically, it has been reached after careful study of the reports, and is believed to represent approximately existing conditions reduced to an intelligible basis. But, whether it does so, or in some respects fails quite so to do, in its working the benefits will greatly outweigh any possible shortcomings, if it removes from the relations between municipalities and the street railway companies a fruitful cause of ill-feeling, recrimination and arbitrary dealing.

The committee submitted with its report a draft of legislation relieving the companies from their former duties (under Public Statutes, c. 113, § 32) of keeping a portion of the "surface material of streets, roads and bridges in repair" and substituting instead a new tax based upon gross receipts, the percentage varying with the receipts per mile of track operated, to be distributed in the case of each company among its cities and towns in proportion to mileage. The basic idea of this legislation was to place upon the municipalities the entire duty of maintaining, repairing and cleaning all portions of the public ways, including portions occupied by the tracks of street railway companies. The companies were even to be relieved from any duty



of removing snow from the streets and were to be required simply to clear it from their tracks.

This snow provision, as recommended by the committee, was as follows: —

Street railway companies may clear snow from their tracks in such manner as may be approved by the superintendent of streets, or by any other officer exercising like powers, and shall, under the direction of such superintendent or officer, level the snow thrown upon the streets by them so as to make the highways safe for public travel; but they shall not be required to remove from the streets snow displaced in clearing their tracks as aforesaid.

It was apparently the intention of the committee, also, that the legislation recommended should apply to all street railways in the commonwealth, including those operated by the Boston Elevated Railway Company.

#### CHAPTER 578, ACTS OF 1898.

As a result of this report, chapter 578 of the Acts of 1898 was enacted. The provisions of this chapter, relative to the maintenance and repair of public ways and the removal of snow, differed, however, in important respects from the legislation recommended by the special committee.

(1) It was provided (section 28) that for the term of twenty-five years from June 10, 1897, the new legislation should not "apply to or affect the Boston Elevated Railway Company or any railways now owned, leased or operated by it," and that sections 27 and 32 of chapter 113 of the Public Statutes should continue during said term in full force with respect thereto. The system operated by this company is, therefore, still subject to these provisions of the Public Statutes.

(2) While the 1898 act followed the recommendations of the committee in providing that street railway companies in general should not thereafter "be required to keep any portion of the surface material of streets, roads and bridges in repair," it added the proviso that they should "remain subject to all legal obligations imposed in original grants of locations" (section 11). The courts have since decided that the expression, "original grant of location," means the first location granted to a street railway company by a city or town and that an obligation to maintain or repair the public ways imposed by such an "original grant" is valid, notwithstanding the 1898 act, and may still be enforced against the company. (See *City of Springfield v. Springfield St.*



Ry. Co., 182 Mass. 41, and City of Worcester v. Worcester Consolidated St. Ry. Co., 182 Mass. 49.)

(3) The provision recommended by the committee with respect to snow removal was changed to read as follows (section 12):—

Street railway companies shall clear snow from their tracks in such a manner as may be approved by the superintendent of streets or by any other officer exercising like powers in the city or town in which such tracks are situated.

This language made it possible, it would seem, for the public authorities to require the actual *removal* of this snow from the streets.

#### EXISTING STATUTES.

The provisions of the 1898 act were re-enacted in the Revised Laws (chapter 112) and again with but slight changes in the codification of the railroad and street railway laws of 1906 (St. 1906, c. 463). The section relieving street railway companies from the duty of repairing the streets is section 79 of part III of that codification. The sections with respect to the new tax, now commonly called the "excise tax" but referred to in the statutes as the "commutation tax," are sections 133 to 137, inclusive, of part III. They were re-enacted again in the codification of the tax laws in 1909 (St. 1909, c. 490, part III, sections 47 to 50 inclusive) and are printed in full in Appendix A. The section with respect to the removal of snow and ice is section 75 of part III of the 1906 act. It has been changed more materially than the others, since 1898, the first paragraph reading now as follows:—

SECTION 75. The superintendent of streets of a city, or any officer who exercises like authority therein and the selectmen of a town, shall establish regulations for the clearance of snow from its tracks by any street railway company operating in said city or town, and for the removal of such snow by said street railway company from the streets or ways in which such tracks are located: *provided*, that no street railway company shall be compelled to remove from the streets or ways in which its tracks are located an amount of snow greater than it has cleared from between its rails and between its tracks and from a space eighteen inches wide on either side of its tracks.

In the following paragraph of this section provision is made for petition of the railway company to the public service commission for such amendment of these regulations as may be reasonable.

An historical review of the legislation relating to the application to be made of the excise tax may be of interest in this connection. The special committee recommended, and the draft of the act submitted with their report provided, that all amounts paid to cities and towns as an excise tax upon street railway companies should be treated by the cities and towns as a separate fund and should be applied to the construction, repair and maintenance of the public ways generally within such cities and towns. The legislation of 1898, chapter 578, omitted the recommendation that the tax should be treated as a separate fund but included the removal of snow and provided, in section 10, as follows: —

All amounts paid to cities and towns under the provisions of sections five, nine and twenty-eight of this act shall be applied towards the construction, repair and maintenance of the public ways, and removal of snow therefrom, within such cities and towns.

This provision was re-enacted without change in this respect in the Revised Laws (c. 14, § 47), and was extended to require the application of the corporate franchise tax in like manner.

In the codification of 1906 (c. 463, pt. III, § 137) important changes were made by the omission of the word "*construction*" and the insertion of the words "*portions of*" and "*and places.*" The statute, in that amended form, provided that the excise and corporate franchise taxes should "be applied toward the repair and maintenance of the portions of the public ways and places in which the tracks of such company are located and to the removal of snow from such public ways and places within such city or town." The next year, however, the legislature retraced its steps (St. 1907, c. 318) and amended section 137, restoring the original provision that these taxes should "be applied toward the repair and maintenance of the public ways and the removal of snow therefrom within such city or town." It is to be noted that the word "*construction*," appearing in the earlier statutes, was not restored at this time. The statute was re-enacted in 1909, chapter 490, part III, section 51, and now provides as follows: —

All taxes which are collected from a street railway or an electric railroad company and paid to a city or town under the provisions of the preceding section, of section sixty-five, and of section twenty-eight of chapter five hundred and seventy-eight of the acts of the year eighteen hundred and ninety-eight, shall be applied in the case of street railway companies

toward the repair and maintenance of the public ways and the removal of snow therefrom within such city or town, and in the case of electric railroad companies shall be applied toward the construction, repair and maintenance of the public ways and places in which the tracks of such company are located, and to the removal of snow from such public ways and places within such cities and towns.

In the case of the Boston Elevated Railway Company, while it pays no excise or commutation tax such as other street railway companies pay, and while it is still subject to the provisions of the Public Statutes imposing the duty of keeping in repair the portions of the streets occupied by its tracks, it also pays, under the provisions of its special charter (St. 1897, c. 500, § 10), what is known as the "compensation tax," amounting, so long as it pays no larger dividends than six per cent, to seven-eighths of one per cent of its gross earnings each year. This tax, in the language of the statute, is imposed "as compensation for the privileges herein granted and for the use and occupation of the public streets, squares and places by the lines of elevated and surface railroad owned, leased and operated by it." It may be regarded as the consideration for the special privileges granted to this company by its charter, including the irrevocable locations of its elevated structures.

## UNDERLYING PRINCIPLES.

### THE DUTY OF THE COMPANY.

To what extent, if at all, should a street railway company be required, directly or indirectly through the payment of a special tax, to maintain and repair the public ways in which it operates? In considering this question it is important to bear in mind that a street railway company has (with minor exceptions) no source of income except the public which it serves. Its revenues come direct from the pockets of the people who ride in its cars and these are, in general, people of small rather than large means. Sound public policy demands that the fares paid by these street car riders should be used to give the best possible service consistent with no more than a reasonable return to the owners of the property, and that no portion of these fares should be diverted without sound reason to other purposes.

Street railway companies should, no doubt, pay taxes like other owners of property; and this they do. Their real estate is subject to local taxation; their bonds are taxable; they pay the so-called "corporate franchise tax", levied upon the market

value of their stock after deducting the assessed value of real estate and machinery locally taxed. These taxes cover, in effect, all their property, whether tangible or intangible. It seems equitable, also, that they should compensate the Commonwealth or the municipalities in so far as they cause special expense to either. But if any burdens in addition to these are imposed upon them for the benefit of the State or local governments, it is simply using the companies to collect indirectly from the street car riders a disproportionate share of the public revenues.

There is a tendency to use street railway companies and other public utility corporations for such indirect and special taxation of a portion of the public. It is doubtless due to a failure to look below the surface. A city government, for example, is anxious to keep down the local tax rate. It sees in the street railway company a possible source of additional revenue, or its equivalent, which can be collected without increasing the direct tax. It conceives, no doubt, of the company as an impersonal creature deriving profits from its special rights in the streets. It fails to realize that the only source of income which this impersonal creature has is the people who ride in its cars, and that any unequal or unjust burden imposed upon the corporation really falls upon these people.

If the company is fortunate enough to have large surplus earnings over and above a reasonable return upon its investment, it is not so apparent that such a burden will reach the public which it serves; but there is always the opportunity, if public regulation is as efficient as it ought to be, to transmute such surplus earnings into better service or lower rates, and any new tax or duty imposed reduces this opportunity by so much. This consideration is largely academic, however, in the present instance, for few of the street railways have such surplus earnings.

Returning now to the question of the repair of public ways, and following the principle above set forth, so far as the presence of street railway lines in the streets adds specially to the cost of maintenance or repair, the companies ought to compensate the municipalities for this extra expense; *but they ought not to pay any more*. In horse car days it was clear that street railways did add specially to the expense, for the horses, travelling over an identical route day in and day out, wore grooves in the paving before repairs were necessary on the street as a whole.

Now that the cars are propelled by electricity instead of by



horses, there are many who claim that the railway lines have ceased to impose any special burden upon the streets. While a strong argument can be made for this position, the Commission is unable to accept it as sound. As the secretary of the special committee of 1898 said, at a time when street railway service was far less extensive than it is to-day: —

Sometimes street railways have been required to pave and maintain the whole width of streets in which the tracks are located, and this charge has in certain cases reached a very large figure, notably in Philadelphia. It is undoubtedly true that the location of a street railway in narrow streets increases the cost of maintenance of the street surface, either by narrowing the space which can be used for the purposes of general traffic, or by throwing this traffic into parallel streets, thus causing the street in which the rails are located to be abandoned to the use of the railway. This latter condition has been found to arise more frequently since the introduction of electricity as motive power, as owing to the higher speeds of the cars, the public is practically unable to use the portion of the street containing the rails, and consequently avoids this street altogether. Wear and tear on carriages caused by the turning in and out over rails not flush with the surface of the roadway also throws travel into other streets. It is evident, therefore, that certain burdens are laid on the public by the use of the streets for the purposes of carrying on the business of a street railway, and these should be paid for.

He might have gone further. The very presence of the tracks in the streets, quite apart from the presence of the cars, increases the expense of paving in the first instance, and also the rapidity with which certain sections of the pavement deteriorate.

What the additional expense is to a city or town, because of the presence of street railway lines in any given street or streets, cannot be determined with accuracy. The Commission is of the opinion, however, that for legislative purposes it may as well be measured by the expense of maintaining, repairing and removing snow from the space occupied by the tracks, in the case of paved streets, and the similar space plus eighteen inches on each side of the tracks, in the case of unpaved streets. This was the standard set by the general laws until 1898, and it is still the standard so far as the system of the Boston Elevated Railway Company is concerned. It is a rough and ready, arbitrary rule based upon no scientific calculations, but at least it has the merit of simplicity. It also has a certain standing from long established custom in all parts of the country. In Appendix B a summary of the requirements in other states, so far as the

Commission has been able to ascertain them by correspondence, is given. It will be noted that in some cases the requirement is more extensive than that indicated above.

In applying this standard, however, it is important to define clearly what is meant by the expense of "maintaining and repairing" the portion of the streets occupied by the tracks. Does it, for instance, include the original cost of any paving, or does it mean merely the cost of keeping the paving in good condition when once it is installed? So far as the Commission can ascertain, the old requirement of the statutes was never interpreted by the courts but the street railway companies were very generally expected, not only to repair any existing pavement, but to renew or improve it or even install an entirely new pavement where none before existed whenever conditions made such work desirable. It appears, also, that the requirement is so construed at present in the case of the Boston Elevated Railway Company. Such a construction, in our judgment, is not unreasonable. The presence of the tracks, as above indicated, adds to the original expense of paving as well as to the cost of repairs.

#### APPLICATION OF THE RULE.

While, however, the Commission believes that the burden of maintaining, repairing and removing snow from the portion of the streets, roads and bridges occupied by their tracks should be borne by the street railway companies, it is not of the opinion that the work should actually be done by the companies, unless it is done at the order and under the direction of the municipal authorities. Any divided authority over the public streets and their maintenance is in the highest degree undesirable. There can be no defense for a system under which one authority can decide that a portion of the street should be repaved while another authority decides, at the same time, that the remainder of the same street should not be repaved, or for a system which results in two kinds of paving on the same street when uniform paving is desirable.

The evils of such a system of divided authority are illustrated in the case of the city of Boston. As indicated above, the Boston Elevated Railway Company is still subject to the old law and still keeps in repair the portions of the streets occupied by its tracks. While the statute requires the company to do the work "to the satisfaction of the superintendent of streets," in actual practice it seems difficult for the latter to exercise his authority.

The situation which exists was indicated by the answer of the corporation counsel of the city, Mr. Sullivan, to a question addressed to him at the public hearing.

Commissioner EASTMAN. Supposing the city reaches the conclusion that a certain street ought to be repaved with a new and desirable kind of pavement. Is there any way in which the city has authority over the company to require the company to join in the plan for the improvement of the street?

Mr. SULLIVAN. None that I know of. I don't say in all cases that the Elevated refuses to join; I think it has in some cases, but it is simply by their consent; I do not suppose we could require them to do it.

While the city authorities seem to feel that the Elevated Company has, on the whole, been reasonable in its attitude toward the paving question, it is a matter of common knowledge that there are a number of streets in Boston (and the same is true of other municipalities in which this company operates) where the city has laid a smooth pavement on each side of the track and where the company has maintained between the tracks granite blocks.

It needs no extended argument to prove that a system which leads to such results is wrong. There should be no divided authority over the streets; the municipal authorities clearly should be in complete control of the situation. Either the cities and towns should do all the work and receive money payments from the companies in lieu of work in kind, or the companies should do the work at the order and under the direction of the municipal authorities.

#### THE PRESENT SYSTEM AND ITS RESULTS.

The recommendations of the special committee of 1898 seem to have been based on the very principles which have been set forth above. It seems that the committee believed that street railway lines did impose a special burden upon the streets for which the companies ought to compensate the cities and towns; that this burden might reasonably be measured by the cost of maintaining, repairing and removing snow from the portion of the public ways occupied by the tracks; that the cities and towns should have complete and undivided authority over the streets and their maintenance and repair; and that the companies, instead of doing the work required by the then existing statutes,

ought rather to pay a special excise tax to the cities and towns equivalent to the cost of this work.

The legislation enacted by the General Court (St. 1898, c. 578) did not fully conform to the recommendations of the committee and these recommendations themselves were not, it seems, in complete harmony with the principles upon which they were evidently based. Judged by these principles, the existing statutes (see Appendix A), which differ only in comparatively unimportant details from the legislation of 1898, are faulty in the following respects: —

*First.* — They do not apply to the Boston Elevated Railway Company. So far as that company is concerned, the old duties and the old system of divided authority are in effect.

*Second.* — They permit any requirements contained in the original grants of locations, with respect to the maintenance and repair of public ways, to remain in full force and effect. The investigation of the Commission has shown that, prior to 1898, it was quite customary for cities and towns to include in location grants the requirements with respect to the maintenance and repair of the streets which were, in fact, imposed upon all the companies by the general law. In the case of the older companies, many such requirements are in existence which are valid under the decisions of our courts and which can be enforced against such companies, so that they may be compelled not only to pay the excise tax, supposed to be in lieu of all work on the streets, but also to do in part the actual work. While it does not appear that these requirements have, as a rule, been enforced by the cities and towns, they have been enforced in some cases and the opportunity is open to enforce them in all such cases.

*Third.* — They permit local authorities to require street railway companies to remove from the streets an amount of snow not greater "than it has cleared from between its rails and between its tracks and from a space eighteen inches wide on either side of its tracks." It was clearly the intention of the special committee of 1898 that the payment of the excise tax should take the place of such work as this as well as of the work of street maintenance and repair. Under the present statutes the companies may be required not only to pay the tax but also to remove the snow.

*Fourth.* — The excise tax provided for by the statutes was uneven and inconsistent in its results. As already stated, the tax is a certain percentage of gross receipts and the percentage



varies with the average gross receipts per mile of track. If these average receipts are \$4,000 or less, the tax is but 1 per cent; if they are between \$4,000 and \$7,000, the tax is 2 per cent, and so on up the scale by steps. The highest rate is 3 per cent and applies if the average receipts per mile are \$28,000 or more. The result of this system is that a town served by a company which operates also in certain large centers of population may receive a much larger tax than a town of exactly the same character which happens to be served by a company operating entirely within thinly populated territory.

The tax is also uneven in its results because no allowance is made for the fact that in many country towns the street railway tracks run outside of the travelled way along the side of the road, where no expenditures for street maintenance and repair are, as a rule, necessary. Figures compiled by the Commission seem to indicate pretty clearly that many towns receive a disproportionate share of the tax. In Appendix C, a table is given showing, in the case of most of the cities and towns of the Commonwealth in which street railways are located (excepting those in Boston Elevated Railway Company territory), the total mileage of all public ways; the mileage of public ways in which street railway lines are located; the percentage which this latter mileage bears to the total; the amounts expended during the three years from 1912 to 1914 inclusive for the maintenance and repair of public ways, for snow removal and for the state highway tax; the total amount received during the same three years from the excise tax; and the percentage which these total receipts bear to the total expenditures. It will be noted that, in the case of a majority of the towns, the tax receipts constitute a larger percentage of the expenditures than the mileage of public ways in which tracks are located constitutes of the total mileage of public ways. The street railway companies in such cases are, apparently, paying more than the total expense of maintaining and repairing the entire surface of the streets in which their tracks are located. The Commission does not undertake to stand sponsor for all these figures, for it has been impracticable to check up the amounts expended upon the streets from the original sources. These amounts were furnished to the Commission by the cities and towns and it is quite possible that they may include, in some cases, expenditures which ought not properly to be included for the purposes of this inquiry. The length of public ways in which street railway tracks are located

is also, in some cases, too high, for the figures are based upon the total miles of street railway line in the cities and towns in question and the lines are located, to some slight extent, upon private right of way. In so far as there may be errors, however, the errors favor the cities and towns and do not affect the general conclusions to be drawn from the tables.

The management of the Union Street Railway Company and the New Bedford and Onset Street Railway Company has submitted to the Commission, in the form of an elaborate brief, the results of a detailed investigation into the operation of the excise tax. Without undertaking to give the results of this investigation in full, it furnishes evidence that the excise tax paid by these companies has been in excess of the cost of maintaining the portions of the streets and highways in which their tracks are located. For example, the following table, submitted in this brief, gives the average cost of repair and maintenance (as distinguished from new construction or betterments) per mile of all streets and ways during the years 1912, 1913 and 1914 in the cities and towns in which the companies operate: —

New Bedford,	. . . . .	\$328 91
Fairhaven,	. . . . .	221 19
Dartmouth,	. . . . .	191 02
Westport,	. . . . .	80 09
Marion,	. . . . .	453 15
Mattapoisett,	. . . . .	208 41
Wareham,	. . . . .	174 19
Bourne,	. . . . .	96 65
Average of above,		\$219 20

Following this table is this comment: —

In the city and towns there were in 1914, 71.632 miles of streets in which tracks were located. The commutation tax actually paid for the above miles of street was \$384.17 per mile. Assuming the proportion of space of street railway occupation arrived at on page 8, to wit, 37 per cent, the above costs to the city and towns should have been \$1,038.30 per mile. That is to say there was an excess of commutation of 373 per cent.

While the expense of new construction and betterments was not included in arriving at these results, the excess of the tax payments indicated, it would seem, would more than compensate for this omission.

The brief also contains the following paragraphs headed "The Case of New Bedford:" —

If the City of New Bedford had adopted the suggestion of the Committee on Revision in 1897 and credited all amounts received as commutation tax to a separate fund, the fund would have aggregated \$115,639.28. If to this fund had been charged all amounts which, under the most liberal interpretation, could be chargeable to it as the part of the total cost of repairing and renewing all streets in which there were railway tracks which, under the law in force before 1898, the street railway company should have borne, it would have charged to the fund \$87,075.91. There would, therefore, now remain a credit balance of \$28,563.37 to the fund. In other words the commutation has been overpaid  $32\frac{1}{2}$  per cent.

It is submitted that since this is true in New Bedford most of the cities of the Commonwealth (exclusive of Boston) would be found to have spent no greater proportion of the commutation taxes received by them. During the period from 1900 to 1913 New Bedford increased in population and in every line of public expenditure much more rapidly than any other city of the Commonwealth.

It is to be noted that in the tabulation the space between the tracks in case of double tracks is added to the space between the rails. This is in excess of the strict requirement of the law prior to 1898.

It is to be further observed that in the tabulation the amounts include, in addition to repair and maintenance costs, also, the costs of new construction and betterments. In many, indeed in most, of the streets named the pavement was not renewed but replaced by a permanent pavement of much higher grade of cost.

In this computation, it will be noted that the cost of new construction and betterments is included.

Copies of this brief were placed by the Commission in the hands of the city clerk of New Bedford, and the authorities of that city and of the towns in which the companies in question operate were notified that these copies were open to inspection at the city hall. The Commission further informed the authorities that it would be glad to have them examine the brief and report if the data therein presented appeared in any way to be incorrect. No criticism of the data has been received.

On the other side of the question, a representative of the city of Springfield stated at the public hearing that the excise tax received by that city does not cover the extra expense caused by the presence of the tracks in its streets. The city has intimated that it is prepared to demonstrate this fact. Its representative also gave an interesting illustration of the way in which the

excise tax provision operates, pointing out that the town of West Springfield, taking into consideration the expense to which it is subject, receives relatively a much larger tax than the city of Springfield.

### RECOMMENDATIONS.

In the view of the matter taken by the Commission it is not necessary to determine with accuracy the discrepancies which exist between the receipts of the various cities and towns from the excise tax and their actual expenditures for the maintenance and repair of the portions of their streets and public ways occupied by street railway tracks. Indeed, such a determination would necessitate a tedious and expensive examination of the books and records of the municipalities. It is obvious from the very nature of the tax that such discrepancies do exist, either on one side or the other. In the opinion of the Commission, furthermore, there is no good reason why the payments made by the companies should not conform to the actual facts in each particular case instead of to a blanket theory in regard to these facts.

It seems that the special committee of 1898 itself had doubts in regard to the results which would follow from the levying of the excise tax and made provision for a revision of the payment, in any case, if it developed that a city or a town was actually receiving each year either too little or too much. This provision is now section 49 of part III of chapter 490 of the Acts of 1909 (see Appendix A). It gives the authorities of any city or town, or the street railway company operating therein, the right to petition this Commission for a revision of the amount of the tax received by such city or town. In the event of such a petition, the Commission, after public notice and a hearing and a consideration of the evidence submitted, is required to determine "the average annual cost to said city or town of the work done by it during the preceding three years under the provisions of this act which it was not by law required to do prior to October 1, 1898," and also the average annual payment made to said city or town during the three years under the excise tax provisions. After it has made such determination, the Commission is authorized to "fix and determine the proportion of the percentage of the gross receipts which shall be paid as an excise tax under the provisions of said section by the company to said city or town annually thereafter." The section also gives any city or town the right to petition the Commission for a distribu-



tion of the entire tax paid by any company, among the several cities and towns in which it operates, different from the distribution provided for in the statutes. No city, town or company has, however, ever availed itself of the provisions of this section. Nor is this at all surprising, for the method of revision is so complicated that a vast amount of time and effort would probably be required of all concerned. If any extensive revision of the excise tax payments throughout the Commonwealth were sought under this section, it is probable that the proceedings would occupy the attention of the Commission for a very long period of time.

Substantially the same results can be accomplished, in the opinion of the Commission, in a simpler way. We therefore recommend —

(1) That the existing provisions of law establishing the so-called excise tax be repealed.

(2) That the burden be placed upon the companies of *paying* for the work actually done each year by any city or town in maintaining and repairing such portions of any paved streets, roads and bridges as are occupied by railway tracks and similar portions of unpaved public ways plus eighteen inches on each side thereof. This is, in essence, the duty which was imposed by the general laws prior to 1898 and the duty which is still imposed upon the Boston Elevated Railway Company. Instead of actually doing the work, however, the recommendation is that the companies be required to *pay* for the work done by the municipal authorities, upon the theory that the cities and towns ought to have complete and undivided authority over their public ways. So far as the provisions with respect to snow removal are concerned, no change in the existing law is, in our judgment, necessary.

As stated above, it appears that the old law was in general construed with respect to all the companies (and is now construed with respect to the Boston Elevated Railway Company), as requiring, not only ordinary repairs, but also new construction and betterments where such work was necessary. The Elevated Company now charges such additions and betterments to capital account and ordinary paving repairs or renewals to operating expenses. Under the new arrangement recommended by the Commission a similar division of charges should be possible, and the draft of legislation herewith submitted so provides.

(3) That the provisions of such a new general law be extended to the Boston Elevated Railway Company, as well as to other

street railway companies. In our judgment there is no provision in the charter of the Elevated Company which stands in the way of such action. Section 10 of chapter 500 of the Acts of 1897, which contains the so-called "contract" with the commonwealth, expiring in 1922, contains the following provision: —

During said period of twenty-five years no taxes or excises not at present in fact imposed upon street railways shall be imposed in respect of the lines owned, leased or operated by said corporation, other than such as may have been in fact imposed upon the lines hereafter leased or operated by it at the date of such operating contract or of such lease or agreement hereafter made therefor nor any other burden, duty or obligation *which is not at the same time imposed by general law on all street railway companies.* (Italics ours.)

Inasmuch as the new tax or burden which we propose is to be imposed by general law at the same time on all street railway companies, it falls outside the prohibition of the above provision.

It may be urged against such a change in existing statutes that the result would be to substitute for a regular and dependable charge upon the companies an irregular charge, varying widely from year to year. This difficulty, however, may be obviated if the companies will establish reserve funds, for the payment of such charges, to which regular amounts are contributed each year. This is precisely what most of them now do in the case of snow and ice expense. It may also be urged that the cities and towns might charge the companies unreasonable and exorbitant prices for the work done and that the companies could do it more cheaply themselves. To overcome this objection, the Commission has inserted a provision in the draft of legislation herewith submitted, to the effect that any company which believes that it is being overcharged for any work may appeal to the county commissioners for a revision of the charge upon a reasonable basis.

#### SENATE NO. 247.

It remains to consider the three bills introduced at the last session of the legislature which were specially referred to the Commission. Senate No. 247 accompanied the petition of the mayor of Boston. It sought to amend a portion of section 79 of part III of chapter 463 of the Acts of 1906 as follows: —

If, during the original construction or subsequent alteration or extension or the making of any such repairs or renewals of any railway or a portion thereof, said surface material *or base of said streets, highways*

*and bridges* is disturbed, the company which owns or operates such railway shall, at its own cost, except as provided in sections sixty-five and seventy-one, replace to the reasonable satisfaction of the superintendent of streets, or other officer who exercises like authority, said surface material *or base of said streets, highways and bridges* with the same form of construction as that [which was disturbed] *of the then existing streets, highways and bridges*, or, by first obtaining the approval thereof by such officer, with a different material and form of construction, and shall restore said street, highway or bridge to as good condition as existed at the time of such disturbance. A street railway company shall be liable for any loss or injury which may be sustained by any person in the management and use of its tracks and during the construction, alteration, extension, repair or renewal of its railway, or while replacing the surface *or base* of any street which may have been disturbed as aforesaid, and which results from the carelessness, neglect or misconduct of its agents or servants who are engaged in the prosecution of such work, if notice of such loss or injury is given to the company and an action therefor is commenced in the manner provided by section twenty of chapter fifty-one of the Revised Laws.

The words in italic were to be inserted in the section as it stands at present; those in brackets, to be struck out. The purpose of this bill, in brief, is to require a company, when it opens a street to repair its tracks or for any other purpose, to replace the paving so disturbed with the same form of surface and base construction as is used on the other portions of the same street. The bill was aimed at the Boston Elevated Railway Company, because of that company's failure to install as good a paving between the tracks, in some cases, as the city has installed upon the rest of the street. The recommendations of the Commission, already stated, place the entire work of street maintenance and repair in the hands of the municipal authorities and make any such change as this unnecessary. We believe, however, that, in view of the modern forms of paving construction, the word "base" should be added to the language used in former statutes and have so provided.

#### HOUSE NO. 1175.

House No. 1175 accompanied the petition of Fred U. French and others and sought to require street railway companies to "oil or cause to be oiled at their expense all sections of the public highways over which their franchises extend where the rest of the traveled way has already been oiled by the state or local authorities." With respect to this provision, the Commission is inclined to the opinion that the oiling of highways

under modern conditions may properly be classed with maintenance and repair work and that the cost of oiling the portion of the public ways occupied by its tracks should fairly be borne by a street railway company. It has so provided in the draft of legislation herewith submitted.

HOUSE No. 1316.

House No. 1316 accompanied the petition of the Massachusetts Street Railway Association. It is very brief, reading as follows: —

Street railway companies shall not hereafter be required by reason of conditions in original grants of location to maintain or keep in repair any portion of public ways or places in which their tracks are located, except to restore such ways and places to as good condition as before wherever they are dug up to construct or repair such tracks, nor be liable for assessments or payments for any such maintenance and repairs of any portions of public ways or places in which the tracks of such companies are not constructed and operated within the wrought or paved portions thereof.

Inasmuch as, under the recommendations of the Commission, street railway companies would be compelled to pay the entire cost of maintaining and repairing the portions of streets occupied by their tracks, obviously any provisions in original grants of locations requiring the companies to do this work themselves would be unnecessary and inconsistent. The draft of legislation submitted herewith therefore nullifies such provisions:

Respectfully submitted,

FREDERICK J. MACLEOD,  
EVERETT E. STONE,  
JOHN F. MEANEY,  
JOSEPH B. EASTMAN,  
CHARLES A. RUSSELL,

*Commissioners.*

MARCH 9, 1916. [P. S. C. 1042]



## APPENDIX A.

STATUTES RELATIVE TO THE REPAIR AND MAINTENANCE  
OF PUBLIC WAYS AND PLACES IN WHICH STREET RAIL-  
WAYS ARE LOCATED.

## ACTS OF 1906, CHAPTER 463, PART III.

SECTION 75. The superintendent of streets of a city, or any officer who exercises like authority therein, and the selectmen of a town, shall establish regulations for the clearance of snow from its tracks by any street railway company operating in said city or town, and for the removal of such snow by said street railway company from the streets or ways in which such tracks are located: *provided*, that no street railway company shall be compelled to remove from the streets or ways in which its tracks are located an amount of snow greater than it has cleared from between its rails and between its tracks and from a space eighteen inches wide on either side of its tracks.

On or before the first day of September in each year, the local authorities hereinbefore named shall transmit to the president or other officer of each street railway company operating its cars in the streets or ways of said city or town, and to the board of railroad commissioners, a copy of the regulations as established by said authorities. Within fourteen days after the receipt by any street railway company of such regulations said street railway company may, by its president or a majority of its board of directors, petition the board of railroad commissioners for such amendment thereto as said president or said board of directors consider reasonable. Said board shall, after notice and a hearing, within sixty days of the receipt of said petition, file with said local authorities and with the president of said street railway company its findings upon said petition, including such amendments to said regulations, if any, as said board considers reasonable, and thereafter such regulations as established by said local authorities and as amended by said board shall be and remain in force until the first day of the September following, and thereafter until other regulations are established as is herein provided.

SECTION 79. A street railway company shall not be required to keep any portion of the surface material of streets, highways and bridges in repair, but it shall remain subject to all legal obligations imposed in original grants of locations, and may, as incident to its corporate franchise, and without being subject to the payment of any fee or to any other condition precedent, open any street, highway or bridge in which any part of its railway is located, for the purpose of making repairs or renewals of the railway, or of any part thereof, and the superintendent of streets or other officer who exercises like authority, or the board of aldermen or selectmen shall issue the necessary permits therefor in a city or town in which such are required. If, during the original construction or subsequent alteration

or extension or the making of any such repairs or renewals of any railway or a portion thereof, said surface material is disturbed, the company which owns or operates such railway shall, at its own cost, except as provided in sections sixty-five and seventy-one, replace to the reasonable satisfaction of the superintendent of streets, or other officer who exercises like authority, said surface material with the same form of construction as that which was disturbed, or, by first obtaining the approval thereof by such officer, with a different material and form of construction, and shall restore said street, highway or bridge to as good condition as existed at the time of such disturbance. A street railway company shall be liable for any loss or injury which may be sustained by any person in the management and use of its tracks and during the construction, alteration, extension, repair or renewal of its railway, or while replacing the surface of any street which may have been disturbed as aforesaid, and which results from the carelessness, neglect or misconduct of its agents or servants who are engaged in the prosecution of such work, if notice of such loss or injury is given to the company and an action therefor is commenced in the manner provided by section twenty of chapter fifty-one of the Revised Laws. The provisions of this section shall not affect the obligations of any street railway company in respect of the construction or maintenance of any bridge or part thereof which any private person or corporation may be liable, in whole or in part, to construct or maintain.

ACTS OF 1909, CHAPTER 490, PART III.

SECTION 47. A street railway or an electric railroad company, including a company whose lines are located partly within and partly without the limits of the commonwealth, whether chartered or organized under the laws of this commonwealth or elsewhere, shall annually, on or before the fifteenth day of October, make and file in the office of the board of assessors of every city and town in which any part of the railway or railroad operated by it is situated, a return signed and sworn to by its president and treasurer, stating, in the case of a street railway company, the length of track operated by it in public ways and places in such city or town, and also the total length of track operated by it in public ways and places, and in the case of an electric railroad company, stating the length of track operated by it longitudinally upon public ways and places in such city or town, and also the total length of track operated by it, determined as provided in section forty, and also the amount of its gross receipts during the year ending on the preceding thirtieth day of September, including therein all amounts received by it from the operation of its railway or railroad, but excluding income derived from the sale of power, rental of tracks or other sources.

SECTION 48. On or before the first day of November annually, the assessors of every city and town in which a street railway or an electric railroad is operated, including a company whose lines are located partly within and partly without the limits of the commonwealth, whether chartered or organized under the laws of this commonwealth or elsewhere, shall assess on each company described in the preceding section operating a

railway or railroad therein an excise tax of an amount equal to such proportion of the following percentages of the gross receipts of such company as, in the case of a street railway company, the length of tracks operated by it in public ways and places of such city or town bears to the total length of tracks operated by it in public ways and places, and in the case of an electric railroad company as the length of tracks operated by it longitudinally in public ways and places of such city or town bears to the total length of tracks operated by it.

The percentages shall be based upon the annual gross receipts for each mile of track as follows, and computed upon the aggregate of said annual gross receipts: four thousand dollars or less, one per cent; more than four thousand dollars and less than seven thousand, two per cent; more than seven thousand dollars and less than fourteen thousand, two and one quarter per cent; more than fourteen thousand dollars and less than twenty-one thousand, two and one half per cent; more than twenty-one thousand dollars and less than twenty-eight thousand, two and three quarters per cent; twenty-eight thousand dollars or more, three per cent.

The excise tax provided by this section shall be in addition to the taxes otherwise provided by law.

SECTION 49. The aldermen of a city, the selectmen of a town, or a street railway or an electric railroad company operating in such city or town may petition the board of railroad commissioners for a revision of the amount of the excise tax to be paid by a company under the provisions of the preceding section. Said board shall, upon such petition, after public notice and a hearing at which said aldermen or selectmen and said company may submit evidence, determine the average annual cost to said city or town of the work done by it during the preceding three years under the provisions of chapter four hundred and sixty-three of the acts of the year nineteen hundred and six, which it was not by law required to do prior to the first day of October in the year eighteen hundred and ninety-eight, and also the average annual payment made by said company to said city or town under and pursuant to the provisions of the preceding section during said three years; and having determined said average annual cost and average annual payments, said board shall fix and determine the proportion of a percentage of the gross receipts which shall be paid as an excise tax under the provisions of said section by the company to said city or town annually thereafter, said percentage to be fixed at such a rate as will be necessary to yield to said city or town annually thereafter an amount equal to the average annual cost to said city or town determined as aforesaid; and the percentage so fixed shall not again be changed for the period of three years, and then only in the manner herein provided. Said board may at any time upon petition therefor by a city or town entitled to a part of the excise tax paid by a street railway or an electric railroad company, after such notice as the board may order to all other cities and towns entitled to share in the excise tax paid by said company, and after a hearing, determine as to the distribution thereof among the several cities and towns in which such company operates any part of its railway or



railroad, and fix the proportions thereof to which they shall respectively be entitled, which shall thereafter be the proportions of said excise tax to be assessed upon said company, instead of the proportion based upon length of tracks as hereinbefore provided.

SECTION 50. Prior to the fifteenth day of November in each year the assessors of every city and town shall notify the collector of taxes thereof of the amount of excise tax assessed therein under the provisions of section forty-eight, and the collector shall forthwith notify the treasurer of each street railway and electric railroad company of the amount of excise tax so assessed upon it, which shall become due and payable within thirty days after the receipt of such notice. The provisions of Part II, so far as appropriate, shall apply to the collection of such excise tax.

SECTION 51. All taxes which are collected from a street railway or an electric railroad company and paid to a city or town under the provisions of the preceding section, of section sixty-five, and of section twenty-eight of chapter five hundred and seventy-eight of the acts of the year eighteen hundred and ninety-eight, shall be applied in the case of street railway companies toward the repair and maintenance of the public ways and the removal of snow therefrom within such city or town, and in the case of electric railroad companies shall be applied toward the construction, repair and maintenance of the public ways and places in which the tracks of such company are located, and to the removal of snow from such public ways and places within such cities and towns.

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## APPENDIX B.

### REQUIREMENTS OF OTHER STATES RELATIVE TO THE MAINTENANCE AND REPAIR OF PUBLIC WAYS BY STREET RAILWAY COMPANIES.

The Commission sent a communication to the Public Service Commissions of the various states requesting information with respect to the following subjects:

- (1) What duties, if any, are imposed upon street railway companies by the general law of the state with respect to the maintenance and repair of public ways in which their tracks are located.
- (2) What similar duties, if any, are imposed in general upon the street railway companies by local municipal authorities.
- (3) What tax, if any, is levied upon street railway companies under the general law in lieu, in whole or in part, of such duties.

The replies received in response to this request have been epitomized as follows: —

#### CONNECTICUT.

The statute requires a street railway company to keep in repair to the satisfaction of local authorities "so much of the highway as is included within its tracks and a space of two feet on the outer side of the outer rails



thereof." In some particulars, additional restrictions and requirements are imposed by a company's charter or by local authorities over which the Public Utilities Commission has appellate jurisdiction upon petition of the company.

There is no tax levied upon street railway companies in lieu of paving and similar requirements.

#### DISTRICT OF COLUMBIA.

An act of Congress requires street railway companies to maintain the surface between rails and two feet on either side thereof. In addition they are required to keep their tracks and the space between and for a distance of two feet outside thereof at the crossings of the several streets which intersect their tracks free from snow and ice.

#### GEORGIA.

The statutes of Georgia providing for the incorporation of street railways provide, among other things, that the company shall be liable for all assessments and other lawful burdens that may be imposed by municipal authorities. These vary in different localities. Generally they provide that the company shall bear the expense of paving between its tracks and for from three to four feet on each side thereof. The expense of bridge or underpass construction is frequently borne jointly and there are instances where an annual fixed tax is charged for the use of bridges by street railways.

#### ILLINOIS.

##### *Chicago.*

The 1907 Chicago traction ordinances require the Chicago street railway companies to fill, grade, pave, keep in repair, sweep and sprinkle eight feet in width of all streets and public ways occupied with a single track and sixteen feet in width if occupied with a double track.

Under the unification ordinances of 1913 the companies, for a period of five years, are required to pay to the city for cleaning the right of way, including the removal of snow, the sum of \$51.50 per month for each mile of double track; and where the companies have single track instead of double track, two miles of single track shall be considered the equivalent of one mile of double track.

#### INDIANA.

The Indiana statute with respect to the construction of street railway tracks in cities and towns does not impose any duties with respect to the maintenance and repair of public ways.

Municipalities have the power to require, and in the main do require, the street railway companies to pave the streets between rails and for a reasonable distance on either side.

## KANSAS.

No general duties are imposed upon street railway companies by the statutory law of Kansas with respect to the repair and maintenance of public ways. Incorporated cities are empowered to grant franchises to interurban railways upon such terms and conditions as the city may prescribe. Generally speaking, all cities require street or interurban railway companies to maintain and repair that portion of the public highway between the tracks, and to pave between the tracks and about two feet outside in paved streets.

No tax is levied upon street railway companies in lieu of duties outlined above.

## MAINE.

The matter of the maintenance and repair of public ways in which street railway tracks are located and the levying of any tax in lieu thereof, is left to the municipalities.

Companies are required to maintain in repair such portions of the streets as are occupied by their tracks and to make all other repairs rendered necessary by such occupation.

Cities are authorized to assess upon street railway companies for sprinkling streets based on the amount of space between the rails and one foot outside thereof.

## MINNESOTA.

*St. Paul.*

The franchise granted to the railway company requires it to pave the space occupied by its tracks and between its lines of double track and for a distance of two feet outside the outer rails thereof, whenever the council of the city shall order the street in which the tracks are located to be paved. The company is required to pave its portion of the street with the same material that the city orders the street to be paved with. It is also required to keep the part of the street occupied by its tracks in repair, to sprinkle it with water in summer and with a non-freezing mixture in winter.

The company pays a gross earnings tax to the city, less the amount paid as general taxes, and also a license tax on its cars.

## NEW HAMPSHIRE.

The law requires street railway companies to keep in repair, to the satisfaction of the local officer in charge of highways, the paving, upper planking or other surface material of the portions of highways and bridges occupied by tracks and at least eighteen inches on each side thereof.

There is no provision under the general law taxing street railway companies in lieu of maintaining and repairing public ways in which tracks are located.

## NEW JERSEY.

Street railway companies are required by law to keep in repair, to the satisfaction of the local authorities, the paving, upper planking or other surface material of the portions of streets, roads and bridges occupied by their tracks and eighteen inches on each side thereof.

The ordinances of many municipalities contain provisions with respect to the maintenance and repair of highways which have been accepted by the companies.

There is no tax levied upon street railway companies which is in lieu of their duties relative to the maintenance and repair of highways.

## NEW YORK.

The railroad law requires street railway companies to keep in repair the street pavements between the tracks and two feet on either side thereof and to clean ice and snow from the streets on which the tracks are located, as the local authorities may direct.

The standard form of franchises requires the company to water the entire width of the streets on which its tracks are located three times every twenty-four hours if such streets are not more than sixty feet in width and only sixty feet if the streets exceed that width. It is also provided that instead of watering the streets the companies may, with the approval of the local authorities, oil the streets between the tracks and two feet on either side thereof.

## OHIO.

The general code of Ohio provides that municipal authorities may require any part or all of the street railway tracks, located within the corporate limits, to be paved between the rails with stone, gravel, boulders, or wooden or asphaltic pavement; track located without the corporate limits shall not be required to be so paved.

No provision is made for the levying of a tax in lieu of the duty of maintaining and repairing the public ways in which street railway tracks are located.

## OKLAHOMA.

The revised laws of Oklahoma provide that all street railway companies shall be required to pave, macadamize, curb, gutter or drain the portion of their track situated in the streets and two feet on each side thereof in the same manner that the remainder of said streets may be so improved; when two or more tracks are located upon one street the company is required to gravel, pave or macadamize as the city may require.

No special tax is provided in lieu of the duty of street railway companies with respect to the maintenance and repair of public ways.

## OREGON.

No duties are imposed upon street railway companies by the general law of the state with respect to the maintenance and repair of public ways in which their tracks are located.

The customary franchise provision imposed by contract between companies and the local municipal authorities contemplates the paving and repair of the portion of the roadway within the tracks and one foot on each side of the rail by the street railway companies. The use of bridges is customarily adjusted by a toll for each car.

No tax is levied upon street railway companies in lieu of any duty with respect to the maintenance and repair of public ways.

## PENNSYLVANIA.

*Philadelphia.*<sup>1</sup>

Under an act of the legislature of 1907 an ordinance of the city councils of Philadelphia was passed authorizing the execution of a contract between the city and the Philadelphia Rapid Transit Company by which it is provided that during the first ten years of the contract the company shall pay to the city each year the sum of \$500,000 and for each succeeding term of ten years this payment shall be increased by \$50,000 until at the end of five terms of ten years the company is paying to the city each year \$700,000. The payment of this sum is in lieu of all obligations on the part of the company and its subsidiaries for the paving, repaving and repairing of the streets occupied by their surface lines, the removal of snow and all license fees with respect to the cars run upon streets and bridges.

When additional streets are occupied by the company, it pays to the city, in addition to the amount above stipulated, a yearly sum equal to seven cents per square yard for each yard of macadam pavement, eight cents per square yard for each yard of asphalt pavement and six cents per square yard for each yard of any other pavement.

Under this contract the company is not liable for any original paving or maintenance work upon the streets occupied by it, except in cases when it opens the streets for repairs, etc., in which event the company restores the pavement disturbed.

Where street railway companies have been exempted from the duty of maintaining any portion of the streets and where they pay an excise tax in lieu thereof, it is a simple matter to determine the probable cost of the maintenance of any character of pavement under varying traffic conditions. After it has been determined what portion of the pavements the company is to pay for, a certain sum per year, which would approximate a fair maintenance charge for the pavements, should be turned over to the municipality for this work. This arrangement would provide for an adequate sum for maintenance and would protect the railway company

<sup>1</sup> Epitomized from the report of the Chief of the Bureau of Surveys, Department of Public Works.



against the city's spending too much for maintenance charges per square yard through improper methods of handling the work. There should be a proper accounting system to protect the interests of both city and company and in this way there would be but one jurisdiction over streets.

#### TENNESSEE.

The matter of defining the duties of street railway companies with respect to the maintenance and repair of public ways is left to local or municipal regulation. As a condition of the grant made to companies the local authorities generally impose the duty of maintaining such parts of the streets as lie between the tracks and two feet outside thereof in the same condition as the balance of the street is maintained by the public authorities.

There is no tax levied upon companies in lieu of the obligation by municipalities and counties to keep the track in repair.

#### VERMONT.

The public service laws of Vermont provide that municipal authorities may require street railway companies to construct and maintain that portion of the travelled highway between the rails and two feet each side thereof in as good condition and state of repair as the adjacent travelled way.

Street railway companies are not required to pay any tax in lieu of their duty with respect to the maintenance and repair of public ways.

#### VIRGINIA.

No duties are imposed by the general law of Virginia upon street railway companies with respect to the maintenance and repair of public ways in which their tracks are located.

No public highway may be occupied by any public service corporation without the consent of the local authorities and as a general rule they impose upon companies the duty of paving between tracks and two feet each side thereof with material similar to that used on the highway. Companies are usually required to maintain that portion of the highway between its tracks and two feet each side thereof in good repair.

No tax is levied upon street railway companies under the general law in lieu of their duties outlined above, although in some instances the company is required by the local authorities to pay a percentage of its receipts, or some other form of compensation to the city or county for the use of the highways.

#### WISCONSIN.

Aside from the requirements of the railway law under which street railway companies may be incorporated, the general laws of Wisconsin do not impose duties upon railway companies with respect to the maintenance and repair of public ways.

Cities are authorized to impose reasonable regulations and a requirement for paving between tracks and of the devil strip is commonly imposed. In some instances companies are required to clean their tracks of snow and ice and to sprinkle the street.

## APPENDIX C.

TABLE I.—*Statement showing by Cities, (1) Length of Public Highways and State Highways, 1914; (2) Length of Public Highways and State Highways in which Street Railway Tracks are located, 1914; (3) Percentage of Highways in which Street Railway Tracks are located to Total Highways; (4) Aggregate Amount expended for Maintenance and Repair of Public Highways, including State Highway Tax and Expense of Snow Removal, 1912, 1913, 1914; (5) Aggregate Amount received from Street Railway Excise Tax, 1912, 1913, 1914; and (6) Percentage of Amount received from the Street Railway Excise Tax to Expense of Highway Maintenance.*

CITY.	Length of Public Highways and State Highways, 1914 (Miles).	Length of Public Highways and State Highways in which Street Railway Tracks are located, 1914 (Miles).	Per Cent of Highways in which Street Railway Tracks are located to Total Highways.	Aggregate Amount expended for Maintenance and Repair of Public Highways, including State Highway Tax and Expense of Snow Removal, 1912, 1913, 1914.	Aggregate Amount received from Street Railway Excise Tax, 1912, 1913, 1914.	Per Cent of Street Railway Excise Tax to Expense of Highway Maintenance.
Attleboro, . . . .	93.39	20.00	21.41	\$108,449 18	\$5,912 49	5.45
Beverly, . . . .	78.58	14.14	17.99	99,610 26	10,582 41	10.62
Brockton, . . . .	127.46	30.28	23.75	169,497 34	25,356 71	14.95
Chicopee, . . . .	83.69	18.38	21.96	73,160 25	15,905 39	21.74
Fall River, . . . .	148.72	29.79	20.03	144,006 42	34,389 02	23.90
Fitchburg, . . . .	142.43	17.87	12.54	207,504 01	13,655 75	6.59
Gloucester, . . . .	123.00	16.19	13.16	103,436 48	12,618 97	11.63
Haverhill, . . . .	151.72	35.23	23.22	82,259 65	24,032 57	29.21
Holyoke, . . . .	124.57	22.51	18.07	193,803 87	17,413 80	8.98
Lawrence, . . . .	108.27	15.21	14.04	258,378 08	14,113 11	5.46
Lowell, . . . .	143.62	31.39	21.85	503,650 04	31,145 52	6.20
Lynn, . . . .	132.88	31.09	23.39	77,917 42	31,171 85	40.00
Marlborough, . . . .	91.79	7.51	8.18	61,947 04	6,170 77	9.96

TABLE I. — *Statement showing by Cities, etc. — Concluded.*

CITY.	Length of Public Highways and State Highways, 1914 (Miles).	Length of Public Highways and State Highways in which Street Railway Tracks are located, 1914 (Miles).	Per Cent of Highways in which Street Railway Tracks are located to Total Highways.	Aggregate Amount expended for Maintenance and Repair of Public Highways, including State Highway Tax and Expense of Snow Removal, 1912, 1913, 1914.	Aggregate Amount received from Street Railway Excise Tax, 1912, 1913, 1914.	Per Cent of Street Railway Excise Tax to Expense of Highway Maintenance.
New Bedford, . . .	145.00	29.61	20.42	\$600,791 16	\$34,299 45	5.70
Newburyport, . . .	69.83	10.93	15.65	59,238 81	5,415 68	9.14
North Adams, . . .	75.14	9.64	12.82	66,627 24	6,142 67	9.21
Northampton, . . .	184.54	17.07	9.25	47,859 47	9,449 87	19.74
Pittsfield, . . . .	160.98	24.26	15.07	92,489 04	16,682 26	18.04
Quincy, . . . . .	167.67	20.98	12.51	154,514 41	19,522 73	12.63
Revere, . . . . .	56.44	11.17	19.79	77,846 04	12,851 41	16.50
Salem, . . . . .	65.20	14.53	22.28	70,300 82	16,238 81	23.10
Springfield, . . .	167.00	37.38	22.38	906,986 00	47,704 04	5.26
Taunton, . . . . .	157.68	33.60	21.31	136,894 54	21,070 73	15.40
Waltham, . . . . .	64.41	12.06	18.72	95,732 45	8,183 12	8.54
Woburn, . . . . .	71.15	13.71	19.26	117,280 10	9,228 68	7.86
Worcester, . . . .	217.96	57.69	26.46	384,735 38	61,959 55	16.10
Total, . . . . .	3,153.12	582.22	18.46	\$4,899,915 50	\$511,217 36	10.43

NOTE. — The above tabulation does not include the cities in which are located tracks operated by the Boston Elevated Railway Company.

TABLE II. — *Statement showing by Towns, (1) Length of Public Highways and State Highways, 1914; (2) Length of Public Highways and State Highways in which Street Railway Tracks are located, 1914; (3) Percentage of Highways in which Street Railway Tracks are located to Total Highways; (4) Aggregate Amount expended for Maintenance and Repair of Public Highways, including State Highway Tax and Expense of Snow Removal, 1912, 1913, 1914; (5) Aggregate Amount received from Street Railway Excise Tax, 1912, 1913, 1914; and (6) Percentage of Amount received from the Street Railway Excise Tax to Expense of Highway Maintenance.*

TOWN.	Length of Public Highways and State Highways, 1914 (Miles).	Length of Public Highways and State Highways in which Street Railway Tracks are located, 1914 (Miles).	Per Cent of Highways in which Street Railway Tracks are located to Total Highways.	Aggregate Amount expended for Maintenance and Repair of Public Highways, including State Highway Tax and Expense of Snow Removal, 1912, 1913, 1914.	Aggregate Amount received from Street Railway Excise Tax, 1912, 1913, 1914.	Per Cent of Street Railway Excise Tax to Expense of Highway Maintenance.
Acton, . . . .	83.68	2.45	2.92	\$18,001 21	\$467 78	2.59
Agawam, . . . .	61.49	8.74	14.21	42,068 65	9,388 70	22.31
Amesbury, . . . .	73.70	14.29	19.39	94,238 74	5,371 30	5.69
Amherst, . . . .	76.77	11.31	14.73	30,335 06	8,287 59	27.32
Andover, . . . .	92.19	7.20	7.80	76,763 46	4,093 95	5.33
Ashland, . . . .	49.45	5.16	10.43	11,189 12	2,269 51	20.28
Athol, . . . .	89.10	5.42	6.08	80,659 97	1,541 15	1.91
Auburn, . . . .	52.28	6.50	12.43	12,942 18	7,570 66	58.49
Avon, . . . .	10.65	1.79	16.79	5,697 95	2,401 43	42.14
Ayer, . . . .	31.61	4.12	13.03	7,750 54	1,369 41	17.66
Bedford, . . . .	31.35	6.35	20.25	39,090 00	3,559 09	9.10
Bellingham, . . . .	47.18	7.69	16.30	12,105 01	1,145 84	9.46
Berlin, . . . .	37.00	4.82	13.02	3,009 50	3,541 07	117.63
Billerica, . . . .	66.58	13.83	20.77	13,400 00	11,461 29	85.52
Blackstone, . . . .	55.73	3.38	6.06	9,045 52	2,526 29	27.93
Bourne, . . . .	118.32	3.85	3.25	120,305 99	882 88	.73
Boylston, . . . .	31.50	7.15	22.69	10,028 32	5,523 88	55.08
Braintree, . . . .	51.06	9.99	19.56	68,563 57	7,217 35	10.53
Bridgewater, . . . .	73.47	11.12	15.13	51,548 61	8,227 89	15.96
Brimfield, . . . .	69.97	3.39	4.84	6,599 80	2,959 95	44.85
Buckland, . . . .	49.30	.22	.44	7,889 65	28 93	.37



TABLE II. — *Statement showing by Towns, etc. — Continued.*

TOWN.	Length of Public Highways and State Highways, 1914 (Miles).	Length of Public Highways and State Highways in which Street Railway Tracks are located, 1914 (Miles).	Per Cent of Highways in which Street Railway Tracks are located to Total Highways.	Aggregate Amount expended for Maintenance and Repair of Public Highways, including State Highway Tax and Expense of Snow Removal, 1912, 1913, 1914.	Aggregate Amount received from Street Railway Excise Tax, 1912, 1913, 1914.	Per Cent of Street Railway Excise Tax to Expense of Highway Maintenance.
Canton, . . . .	43.23	8.16	18.87	\$36,168 66	\$2,539 99	7.22
Charlton, . . . .	139.01	5.18	3.72	21,081 57	4,229 74	20.06
Chelmsford, . . . .	98.21	8.62	8.78	22,337 42	5,648 76	25.11
Cheshire, . . . .	74.53	7.09	9.51	9,647 53	5,515 63	57.17
Clarksburg, . . . .	16.21	.95	5.86	4,067 54	626 25	15.37
Clinton, . . . .	35.28	5.04	14.28	43,368 16	3,897 57	9.00
Colrain, . . . .	88.13	2.60	2.95	18,104 35	341 97	1.88
Concord, . . . .	92.02	6.87	7.46	134,831 43	1,893 50	1.40
Conway, . . . .	90.00	5.54	6.15	10,500 00	247 03	2.35
Dalton, . . . .	37.56	3.57	9.50	10,699 67	326 63	3.06
Danvers, . . . .	90.00	12.13	13.47	41,500 00	8,777 02	21.15
Dartmouth, . . . .	117.49	6.65	5.66	61,660 73	13,309 82	21.58
Dedham, . . . .	57.53	8.43	14.65	83,167 88	4,957 17	5.96
Dighton, . . . .	50.65	7.09	13.99	15,742 79	5,162 53	32.87
Dover, . . . .	40.37	.71	1.75	20,326 93	29 13	.14
Dracut, . . . .	70.09	4.27	6.09	42,134 28	8,958 97	21.26
East Bridgewater, . . . .	49.50	5.84	11.78	29,125 41	4,085 77	14.03
East Longmeadow, . . . .	41.30	1.93	4.67	4,949 06	1,936 00	39.12
Easthampton, . . . .	57.77	6.84	11.84	30,284 12	4,376 14	14.45
Easton, . . . .	63.80	7.07	11.08	42,842 25	4,937 98	11.52
Egremont, . . . .	36.00	.86	2.39	4,500 00	498 34	11.07
Essex, . . . .	23.76	4.29	18.05	10,535 29	2,931 49	27.82
Fairhaven, . . . .	39.45	5.72	14.48	42,106 31	7,593 28	18.03
Foxborough, . . . .	55.51	7.33	13.20	12,117 36	1,973 73	16.28
Framingham, . . . .	103.21	9.69	9.39	95,242 30	15,977 13	16.78
Freetown, . . . .	70.07	3.02	4.31	11,394 74	2,170 14	19.04
Gardner, . . . .	78.36	6.52	8.32	85,054 76	1,895 34	2.23
Georgetown, . . . .	32.00	4.17	13.03	8,665 79	2,924 72	33.75
Grafton, . . . .	78.60	8.29	10.54	28,218 12	6,415 41	22.73

TABLE II. — *Statement showing by Towns, etc. — Continued.*

TOWN.	Length of Public Highways and State Highways, 1914 (Miles).	Length of Public Highways and State Highways in which Street Railway Tracks are located, 1914 (Miles).	Per Cent of Highways in which Street Railway Tracks are located to Total Highways.	Aggregate Amount expended for Maintenance and Repair of Public Highways, including State Highway Tax and Expense of Snow Removal, 1912, 1913, 1914.	Aggregate Amount received from Street Railway Excise Tax, 1912, 1913, 1914.	Per Cent. of Street Railway Excise Tax to Expense of Highway Maintenance.
Great Barrington, . . .	85.41	6.89	8.06	\$36,497 16	\$4,306 41	11.78
Greenfield, . . . .	-	6.30	-	106,332 76	2,203 42	2.07
Groveland, . . . .	31.72	4.26	13.35	10,169 64	3,099 45	30.47
Hamilton, . . . .	40.66	4.76	11.67	32,157 17	3,323 95	10.34
Hanover, . . . .	46.85	3.45	7.37	13,098 32	2,473 67	18.89
Hanson, . . . .	34.00	6.90	20.28	13,900 00	2,125 46	15.29
Hardwick, . . . .	86.64	1.02	1.18	12,360 50	8,865 57	71.73
Hatfield, . . . .	60.04	6.42	10.68	9,881 25	2,244 28	22.71
Hingham, . . . .	86.66	13.39	15.46	70,290 02	10,696 77	15.22
Hinsdale, . . . .	34.52	1.24	3.58	5,804 07	767 79	13.15
Holbrook, . . . .	21.75	3.54	16.28	9,846 13	3,158 95	32.09
Holden, . . . .	91.73	3.69	4.02	10,383 17	2,787 90	26.85
Holliston, . . . .	58.93	5.89	9.99	10,310 19	2,375 24	22.84
Hopedale, . . . .	16.60	4.61	27.78	56,627 53	1,226 48	2.17
Hudson, . . . .	44.14	5.09	11.53	35,635 00	2,860 07	8.03
Hull, . . . .	25.70	4.22	16.42	38,439 13	3,453 03	8.98
Huntington, . . . .	52.26	.85	1.63	9,174 82	732 75	7.99
Ipswich, . . . .	64.42	6.42	9.96	34,355 25	4,472 34	13.02
Kingston, . . . .	41.02	6.70	16.33	13,961 78	1,963 23	14.06
Lakeville, . . . .	73.36	10.84	14.78	21,049 42	6,941 22	32.98
Lancaster, . . . .	71.25	5.40	7.58	33,692 96	4,245 84	12.60
Lanesborough, . . . .	55.29	4.50	8.14	8,828 02	1,522 69	17.24
Lee, . . . .	69.33	5.55	8.01	24,945 72	3,553 02	14.24
Leicester, . . . .	73.37	4.66	6.36	21,849 08	3,447 20	15.75
Lenox, . . . .	63.41	4.15	6.54	60,012 71	2,565 41	4.27
Leominster, . . . .	101.62	18.76	18.47	137,852 87	13,329 19	9.67
Lexington, . . . .	84.29	9.87	11.71	88,089 40	5,825 47	6.61
Longmeadow, . . . .	34.50	3.26	9.45	70,478 01	5,182 62	7.35
Ludlow, . . . .	70.00	.85	1.22	21,043 00	691 49	3.28

TABLE II. — *Statement showing by Towns, etc. — Continued.*

TOWN.	Length of Public Highways and State Highways, 1914 (Miles).	Length of Public Highways and State Highways in which Street Railway Tracks are located, 1914 (Miles).	Per Cent of Highways in which Street Railway Tracks are located to Total Highways.	Aggregate Amount expended for Maintenance and Repair of Public Highways, including State Highway Tax and Expense of Snow Removal, 1912, 1913, 1914.	Aggregate Amount received from Street Railway Excise Tax, 1912, 1913, 1914.	Per Cent of Street Railway Excise Tax to Expense of Highway Maintenance.
Lunenburg, . . .	85.89	3.32	3.87	\$10,946 48	\$2,222 69	20.28
Lynnfield, . . .	20.03	2.86	14.28	7,351 27	1,984 12	26.99
Marblehead, . . .	34.00	4.03	11.85	76,719 50	3,163 52	4.12
Marion, . . . .	31.85	4.30	13.50	31,194 57	947 24	3.03
Mattapoissett, . . .	37.21	4.38	11.77	19,544 52	1,032 14	5.28
Maynard, . . . .	25.00	3.21	12.84	13,000 00	612 96	4.72
Medfield, . . . .	40.00	2.89	7.22	15,870 25	159 25	1.01
Medway, . . . .	40.00	4.09	10.22	15,805 43	1,691 18	10.68
Merrimac, . . . .	37.23	3.07	8.25	7,408 02	1,250 14	16.88
Methuen, . . . .	95.88	18.28	19.07	42,795 99	11,898 09	27.80
Middleborough, . . .	208.45	17.54	8.41	36,446 46	7,240 00	19.86
Middleton, . . . .	33.48	4.48	13.38	7,839 10	3,198 83	40.81
Milford, . . . .	83.55	8.57	10.25	45,974 55	3,405 23	7.41
Millbury, . . . .	52.98	7.49	14.13	30,090 43	5,892 98	19.58
Milton, . . . .	55.87	7.73	13.83	49,993 38	8,216 77	16.43
Monson, . . . .	129.11	6.08	4.71	24,327 07	5,381 54	22.12
Montague, . . . .	100.73	7.48	7.43	29,928 10	2,613 20	8.73
Nahant, . . . .	11.00	2.87	26.08	38,600 00	1,627 63	4.22
Natick, . . . .	105.20	8.71	8.28	73,236 87	11,780 76	16.08
Needham, . . . .	47.03	7.76	15.48	52,336 09	4,187 11	8.00
Newbury, . . . .	47.23	11.19	23.69	16,539 43	6,871 38	41.54
North Andover, . . .	108.60	15.54	14.31	36,189 78	11,136 70	30.77
North Attleborough, .	95.30	6.55	6.87	54,497 78	3,319 43	6.09
North Brookfield, . .	69.25	2.92	4.22	9,658 51	208 65	2.16
North Reading, . . .	38.79	4.63	11.94	21,920 19	3,250 08	14.83
Northborough, . . .	59.46	7.10	11.95	13,497 38	5,613 13	41.59
Northbridge, . . . .	44.14	7.34	16.63	26,912 38	5,136 81	19.09
Norwell, . . . .	50.60	1.61	3.18	13,518 94	1,132 45	8.37
Norwood, . . . .	42.07	8.27	19.65	59,082 96	3,131 08	5.29

TABLE II. — *Statement showing by Towns, etc. — Continued.*

TOWN.	Length of Public Highways and State Highways, 1914 (Miles).	Length of Public Highways and State Highways in which Street Railway Tracks are located, 1914 (Miles).	Per Cent of Highways in which Street Railway Tracks are located to Total Highways.	Aggregate Amount expended for Maintenance and Repair of Public Highways, including State Highway Tax and Expense of Snow Removal, 1912, 1913, 1914.	Aggregate Amount received from Street Railway Excise Tax, 1912, 1913, 1914.	Per Cent of Street Railway Excise Tax to Expense of Highway Maintenance.
Orange, . . . . .	84.80.	3.21	3.79	\$24,369 75	\$1,066 13	4.37
Oxford, . . . . .	78.63	8.51	10.82	12,837 75	7,087 11	55.20
Palmer, . . . . .	105.04	10.93	10.41	28,242 94	10,856 62	38.44
Peabody, . . . . .	54.00	10.96	20.28	105,462 30	8,384 71	7.95
Pelham, . . . . .	38.00	.59	1.55	4,250 00	276 42	6.50
Pembroke, . . . . .	57.35	3.79	6.59	10,715 33	1,118 53	10.43
Phillipston, . . . . .	48.78	2.82	5.78	6,918 95	515 73	7.45
Plainville, . . . . .	37.30	2.29	6.14	4,960 30	558 76	11.26
Plymouth, . . . . .	221.32	12.17	5.50	75,446 80	1,957 32	2.59
Randolph, . . . . .	32.65	9.34	28.57	18,243 55	5,267 76	28.87
Raynham, . . . . .	54.14	8.36	15.44	15,772 37	5,939 77	37.66
Reading, . . . . .	51.74	10.60	20.49	34,859 76	8,208 84	23.55
Rehoboth, . . . . .	114.04	7.55	6.62	22,708 60	3,061 31	13.48
Rochester, . . . . .	91.17	.12	.13	11,380 54	26 66	.23
Rockland, . . . . .	38.85	8.20	21.10	44,057 91	5,866 60	13.31
Rockport, . . . . .	28.60	5.66	19.79	22,375 96	4,025 02	17.98
Rowley, . . . . .	43.64	3.18	7.28	5,310 02	2,201 24	41.45
Russell, . . . . .	33.66	5.92	17.58	14,004 48	5,302 47	37.86
Seekonk, . . . . .	57.03	8.14	14.28	30,066 97	4,301 81	14.30
Sharon, . . . . .	69.31	3.72	5.39	18,158 76	189 91	1.04
Sheffield, . . . . .	103.89	3.75	3.61	22,487 53	1,503 55	6.68
Shelburne, . . . . .	49.47	1.43	2.92	16,870 69	272 12	1.61
Sherborn, . . . . .	50.00	.01	.02	17,356 91	2 68	.015
Shirley, . . . . .	44.18	1.12	2.54	4,567 84	583 11	12.76
Shrewsbury, . . . . .	66.86	6.77	10.12	15,939 17	5,759 18	36.13
Somerset, . . . . .	35.70	7.68	21.51	29,406 78	5,615 74	19.09
South Hadley, . . . . .	57.06	6.43	11.26	26,403 47	3,771 09	14.28
Southborough, . . . . .	63.69	5.61	8.80	24,594 19	6,239 61	25.37
Southbridge, . . . . .	70.86	5.08	7.16	124,293 61	4,180 58	3.36



TABLE II. — *Statement showing by Towns, etc. — Continued.*

TOWN.	Length of Public Highways and State Highways, 1914 (Miles).	Length of Public Highways and State Highways in which Street Railway Tracks are located, 1914 (Miles).	Per Cent of Highways in which Street Railway Tracks are located to Total Highways.	Aggregate Amount expended for Maintenance and Repair of Public Highways, including State Highway Tax and Expense of Snow Removal, 1912, 1913, 1914.	Aggregate Amount received from Street Railway Excise Tax, 1912, 1913, 1914.	Per Cent of Street Railway Excise Tax to Expense of Highway Maintenance.
Spencer, . . . .	95.06	5.05	5.31	\$21,949 33	\$2,446 28	11.14
Stockbridge, . . .	47.50	1.85	3.89	33,309 20	1,146 90	3.45
Stoneham, . . . .	39.08	7.14	18.27	49,437 16	5,830 62	11.79
Stoughton, . . . .	61.05	9.47	15.51	32,416 12	2,808 52	8.66
Stow, . . . . .	45.00	3.58	7.95	6,730 13	527 74	7.84
Sturbridge, . . . .	92.36	5.23	5.66	13,468 08	4,320 91	32.08
Sunderland, . . . .	42.73	3.75	8.77	5,012 86	3,931 31	78.41
Sutton, . . . . .	94.28	1.20	1.27	10,148 57	769 57	7.58
Swampscott, . . . .	29.99	3.59	11.94	129,074 45	2,803 99	2.17
Swansea, . . . . .	56.15	4.42	7.87	41,242 87	1,725 94	4.18
Templeton, . . . .	94.19	11.24	11.94	11,998 66	2,230 88	18.59
Tewksbury, . . . .	71.00	6.63	9.33	14,960 12	4,693 29	31.37
Tyngsborough, . . .	47.93	4.75	9.91	11,757 16	3,721 16	31.64
Uxbridge, . . . . .	84.99	6.66	7.83	14,854 08	3,661 77	24.65
Wakefield, . . . .	48.00	10.39	21.64	115,401 91	10,164 12	8.81
Walpole, . . . . .	70.03	9.72	13.88	42,574 51	2,589 69	6.08
Ware, . . . . .	96.18	7.26	7.55	21,946 26	3,274 70	14.92
Wareham, . . . . .	143.48	9.54	6.65	61,023 21	2,521 20	4.13
Warren, . . . . .	76.10	4.50	5.91	12,475 38	336 39	2.69
Wayland, . . . . .	54.58	4.85	8.88	31,311 91	2,226 84	7.11
Webster, . . . . .	38.73	6.25	16.14	74,445 51	4,980 03	6.68
Wellesley, . . . . .	56.18	9.35	16.64	103,847 51	12,559 08	12.09
Wenham, . . . . .	21.76	2.73	12.54	26,977 49	1,963 54	7.27
West Boylston, . . .	44.44	1.51	3.39	11,400 99	2,108 14	18.48
West Bridgewater, . .	47.16	4.80	10.18	13,722 74	3,373 37	24.57
West Brookfield, . .	57.82	9.44	16.32	5,930 62	813 96	13.72
West Newbury, . . .	49.09	5.10	10.39	11,474 47	3,594 03	31.32
Westfield, . . . . .	107.81	12.91	11.97	77,643 58	12,356 30	15.91
Westford, . . . . .	94.95	5.24	5.51	14,741 83	764 59	5.18

TABLE II. — *Statement showing by Towns, etc. — Concluded.*

Town.	Length of Public Highways and State Highways, 1914 (Miles).	Length of Public Highways and State Highways in which Street Railway Tracks are located, 1914 (Miles).	Per Cent of Highways in which Street Railway Tracks are located to Total Highways.	Aggregate Amount expended for Maintenance and Repair of Public Highways, including State Highway Tax and Expense of Snow Removal, 1912, 1913, 1914.	Aggregate Amount received from Street Railway Excise Tax, 1912, 1913, 1914.	Per Cent of Street Railway Excise Tax to Expense of Highway Maintenance.
Westminster, . . .	99.25	8.50	8.56	\$11,828 68	\$2,245 16	18.97
Westport, . . .	114.45	4.43	3.86	51,446 80	10,712 34	20.82
Westwood, . . .	33.07	5.44	16.44	19,639 32	1,082 00	5.51
Weymouth, . . .	81.94	19.36	23.62	75,598 06	13,995 76	18.51
Whately, . . .	47.03	3.11	6.61	5,292 39	1,088 72	20.57
Whitman, . . .	38.65	7.71	19.94	32,125 25	6,055 83	18.85
Wilbraham, . . .	52.07	5.19	9.96	9,207 98	4,839 83	52.56
Williamsburg, . . .	45.65	6.22	13.62	8,097 05	1,724 19	21.29
Williamstown, . . .	68.61	3.52	5.13	58,240 76	2,207 22	3.79
Wilmington, . . .	56.17	10.69	19.03	21,745 36	7,521 34	34.58
Winchester, . . .	44.96	6.31	14.03	142,877 42	4,601 47	3.22
Wrentham, . . .	69.43	8.20	11.81	7,574 34	1,362 17	17.99
Totals, . . .	11,112.18	1,091.78	9.82	\$5,856,811 16	\$708,580 41	12.10

NOTE. — The above tabulation does not include the towns in which are located tracks operated by the Boston Elevated Railway Company; nor several additional towns from which no returns have been received.

### PROPOSED LEGISLATION.

#### AN ACT RELATIVE TO THE TAXATION OF STREET RAILWAY COMPANIES AND THE REPAIR AND MAINTENANCE OF PUBLIC WAYS AND PLACES IN WHICH STREET RAILWAYS ARE LOCATED.

*Be it enacted, etc., as follows:*

SECTION 1. On or before the first day of November annually, the assessors of every city and town shall assess on every company operating a street railway or electric railroad therein, including any company whose lines are located partly within and partly without the limits of the commonwealth, whether chartered or organized under the laws of this commonwealth or elsewhere, and including the Boston Elevated Railway Company, an excise tax of an amount equal to the amount expended or incurred during the twelve months ended upon the thirtieth day of the preceding September by such city or town, or by the Massachusetts high-

way commission within the limits of such city or town, in installing, renewing, repairing or oiling the paving, upper planking or other surface material, or the base thereof, of the portions of public ways and bridges occupied by the tracks of said company (including the portions between lines of double track), and if such tracks occupy unpaved public ways, any additional amount expended or incurred by such city or town, or by the highway commission within the limits of such city or town, during such twelve months in installing, renewing, repairing or oiling the surface material eighteen inches on each side of the portions of such unpaved public ways occupied by such tracks; and said assessors shall return to the public service commission the names of all such companies on which they have assessed any such tax together with a statement, in such detail as the public service commission shall prescribe, of the amount of such tax, and the nature and amount of the expenditures found by said assessors to have been made or incurred by the city or town, or by the highway commission within the limits of such city or town, as the basis for the assessment of said tax, and showing also, in each case, what portion of such expenditures, if any, was for additions and betterments and what portion was for renewals and repairs. The Massachusetts highway commission is hereby directed to furnish, on or before the fifteenth day of October annually, a certificate to the assessors of each city and town, in such detail as may be necessary to enable the assessors to comply with the provisions of this section, showing the amounts expended or incurred by said commission during the twelve months ended upon the thirtieth day of the preceding September within the limits of such city or town in installing, renewing, repairing or oiling the paving, upper planking or other surface material, or the base thereof, of the portions of state highways or bridges occupied by the tracks of any such company (including the portions between lines of double track), and if such tracks occupy unpaved state highways, any additional amount expended or incurred during such twelve months in installing, renewing, repairing or oiling the surface material eighteen inches on each side of the portions of such unpaved state highways occupied by such tracks.

The excise tax provided by this section shall be in addition to the taxes otherwise provided by law.

SECTION 2. On or before the first day of November in each year the assessors of every city and town shall notify the collector of taxes thereof of the amount of the excise tax assessed therein under the provisions of section one, and the collector shall forthwith notify the treasurer of each street railway and electric railroad company (including the Boston Elevated Railway Company) of the amount of excise tax so assessed upon it, which shall become due and payable within thirty days after the receipt of such notice, with interest after the first day of December. The provisions of Part II of chapter four hundred and ninety of the acts of the year nineteen hundred and nine, so far as appropriate, shall apply to the collection of such excise tax.



SECTION 3. Within thirty days after receiving notice of the amount of the excise tax assessed upon it by the assessors of any city or town, any street railway or electric railroad company (including the Boston Elevated Railway Company) aggrieved thereby may appeal therefrom by filing a complaint with the clerk of the county commissioners for the county in which such city or town is situated or of any board exercising the powers of such commissioners. If, upon a public hearing after due notice to such city or town, said county commissioners or said board shall find the amount of the excise tax assessed upon said company to be in excess of the amount which should justly and reasonably have been assessed under the provisions of section one of this act, said county commissioners or said board shall make a reasonable abatement and an order as to costs. A company whose tax is thus abated shall be entitled to a certificate thereof from the board making such abatement, and, if the tax has been paid, shall be reimbursed by the city or town to the amount of the abatement allowed, with interest from the time of payment of said tax and all charges paid therewith. If no abatement is granted, said county commissioners or said board may allow the city or town its expenses and costs, to be paid by the company.

SECTION 4. If a portion of the excise tax levied upon a street railway or an electric railroad company (including the Boston Elevated Railway Company) under the provisions of this act represents additions or betterments to the paving, upper planking or other surface material, or the base thereof, of portions of public ways or bridges in which tracks owned by said company are located, said company may charge such portion of the tax to capital account and may, subject to the provisions of all laws applicable to the issue of its capital stock and bonds, increase its capital stock or issue bonds to such an amount as the public service commission shall determine has been properly expended or is properly required for such purpose; and if any portion of said tax represents additions and betterments to the paving, upper planking or other surface material, or the base thereof, of portions of public ways and bridges in which tracks leased to or operated under contract by said company are located, said company may collect such amount from the company owning said tracks and the latter company may charge said amount to capital account and may, subject to the provisions of all laws applicable to the issue of its capital stock and bonds, increase its capital stock or issue bonds to such amount as the public service commission shall determine has been properly expended or is properly required for such purpose.

SECTION 5. Section seventy-nine of Part III of chapter four hundred and sixty-three of the acts of the year nineteen hundred and six is hereby amended by inserting after the word "required" in the second line the words: — by reason of conditions in original grants of location or otherwise — by inserting after the word "material", where it occurs in the second, seventeenth and twenty-second lines, the words: — or the base thereof, — by inserting after the word "all" in the fourth line the word:



— other, — by inserting after the word “surface” in the thirty-first line the words: — material, or the base thereof, — and by inserting at the end thereof the sentence: — The provisions of this section shall apply to the Boston Elevated Railway Company and to all railways owned, leased or operated by it, — so that said section, as amended, shall read as follows: —

*Section 79.* A street railway company shall not be required by reason of conditions in original grants of location or otherwise to keep any portion of the surface material, or the base thereof, of streets, highways and bridges in repair, but it shall remain subject to all other legal obligations imposed in original grants of locations, and may, as incident to its corporate franchise, and without being subject to the payment of any fee or to any other condition precedent, open any street, highway or bridge in which any part of its railway is located, for the purpose of making repairs or renewals of the railway, or of any part thereof, and the superintendent of streets or other officer who exercises like authority, or the board of aldermen or selectmen shall issue the necessary permits therefor in a city or town in which such are required. If, during the original construction or subsequent alteration or extension or the making of any such repairs or renewals of any railway or a portion thereof, said surface material, or the base thereof, is disturbed, the company which owns or operates such railway shall, at its own cost, except as provided in sections sixty-five and seventy-one, replace to the reasonable satisfaction of the superintendent of streets, or other officer who exercises like authority, said surface material, or the base thereof, with the same form of construction as that which was disturbed, or, by first obtaining the approval thereof by such officer, with a different material and form of construction, and shall restore said street, highway or bridge to as good condition as existed at the time of such disturbance. A street railway company shall be liable for any loss or injury which may be sustained by any person in the management and use of its tracks and during the construction, alteration, extension, repair or renewal of its railway, or while replacing the surface material, or the base thereof, of any street which may have been disturbed as aforesaid, and which results from the carelessness, neglect, or misconduct of its agents or servants who are engaged in the prosecution of such work, if notice of such loss or injury is given to the company and an action therefor is commenced in the manner provided by section twenty of chapter fifty-one of the Revised Laws. The provisions of this section shall not affect the obligations of any street railway company in respect of the construction or maintenance of any bridge or part thereof which any private person or corporation may be liable, in whole or in part, to construct or maintain. The provisions of this section shall apply to the Boston Elevated Railway Company and to all railways owned, leased or operated by it.

SECTION 6. Section fifty-one of Part III of chapter four hundred and ninety of the acts of the year nineteen hundred and nine is hereby amended by striking out the words “of the preceding section” in the

third line, so that the section as amended shall read as follows:— *Section 51.* All taxes which are collected from a street railway or an electric railroad company and paid to a city or town under the provisions of section sixty-five, and of section twenty-eight of chapter five hundred and seventy-eight of the acts of the year eighteen hundred and ninety-eight, shall be applied in the case of street railway companies toward the repair and maintenance of the public ways and the removal of snow therefrom within such city or town, and in the case of electric railroad companies shall be applied toward the construction, repair and maintenance of the public ways and places in which the tracks of such company are located, and to the removal of snow from such public ways and places within such cities and towns.

SECTION 7. Sections forty-seven to fifty, inclusive, of Part III of chapter four hundred and ninety of the acts of the year nineteen hundred and nine and all other acts and parts of acts inconsistent herewith and any portion of chapter five hundred and seventy-eight of the acts of the year eighteen hundred and ninety-eight which might otherwise be held to prevent the application of this act to the Boston Elevated Railway Company or to any railways now owned, leased or operated by it are hereby repealed.

SECTION 8. This act shall take effect upon the first day of January. nineteen hundred and seventeen.

REPORT OF THE PUBLIC SERVICE COMMISSION  
UNDER RESOLVE OF THE GENERAL COURT  
PROVIDING FOR AN INVESTIGATION OF TRANS-  
PORTATION FACILITIES AND TRANSFER PRIV-  
ILEGES AT THE DUDLEY STREET TERMINAL  
OF THE BOSTON ELEVATED RAILWAY COMPANY  
AND RELATIVE TO STATIONS AT DALE STREET  
AND EGLESTON SQUARE.

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*To the Honorable the Senate and House of Representatives of the Common-  
wealth of Massachusetts.*

Chapter 61 of the Resolves of 1915 reads as follows: —

*Resolved*, That the public service commission is hereby directed to investigate the operation of elevated and surface cars at the Dudley street terminal in the city of Boston, and the advisability and practicability of requiring the Boston Elevated Railway Company to issue to each passenger a free transfer ticket enabling him to transfer from any car of said company running into said station or terminal, or on any street adjoining the same, to any other car of the said company going in the same general direction as the car on which the transfer ticket was issued and running from any part of said station or terminal or on any street adjoining the same, and that the said commission be further directed to investigate the general necessity and practicability of an elevated station at the corner of Dale and Washington streets, and also the need of a more extended use of the Egleston square station in Boston. The commission shall report its conclusions, with such recommendations as it may deem expedient, to the general court on or before the second Tuesday in January, nineteen hundred and sixteen.

Upon the subject matter of this resolve the Commission has held several public hearings and has investigated conditions in person and through its inspection and engineering departments.

Dudley street station was formerly the southerly terminus of the elevated rapid transit lines of the Boston Elevated Railway Company. Later these lines were extended to Forest Hills. Dudley street station is, however, still the terminus of a great many of the surface lines operating in Dorchester and Roxbury and the principal transfer point between these lines and the rapid transit system. It was enlarged in 1909 and the method of

operation changed. As now operated, there are three levels: The top level serves the through south-bound rapid transit trains; the intermediate level serves the north-bound rapid transit trains, and also certain surface lines that come into the so-called east and west loops, which are located on this level; the lower, or ground, level serves certain surface car lines which are routed to or through the station. The station is designed so that a passenger entering on any train or car can transfer, without going outside the station limits, to any other train or car going in the same general direction or in a lateral direction, but is not intended to allow a passenger to ride back in the direction from which he came without paying an additional fare.

It is estimated that about 85,000 passengers, both inbound and outbound, transfer daily in this station, and approximately 40 per cent of these transfer in the morning and evening rush hours. This large volume of travel overtaxes present facilities and causes a serious congestion during the rush hours for which some form of relief is urgently demanded.

The present congestion is most acute at the east loop where, as appears from counts made some time ago by the inspection department of the Commission, more than 40,000 passengers transfer daily in each direction. Of this number nearly 10,000, or about 25 per cent, transfer to and from the line operating to Mattapan. To relieve the congestion at this loop it is proposed to divert the Mattapan line to Egleston square, so that the transfer to the elevated may be made at that station instead of at Dudley street. This change was suggested in the report which the Commission made to the General Court at the last session, on "Transportation in the Metropolitan District." The matter was taken up again in connection with the public hearings on this resolve and, at the direction of the Commission, tentative plans for the enlargement of the Egleston square station for the purpose indicated were submitted by the company. These plans were carefully examined by the engineers of the Commission, and certain improvements were suggested which were embodied in final plans which have been approved by the Commission. These plans provide for facilities which will be adequate for handling other lines, in addition to the Mattapan line, if at a later time it should be deemed desirable to divert such lines to Egleston square.

The more extended use of Egleston square will not only greatly relieve the congestion at Dudley street, but will afford quicker



and better transportation for the Dorchester district. The desire for this improvement appeared to be so general and its need so urgent that the Commission directed the company "to use all possible diligence in undertaking the changes contemplated in the plan, with a view to the completion of the work within a period of six months."

In order further to relieve the present congestion at the east loop of the Dudley street station, the Commission urged upon the company the desirability of making certain alterations in this portion of the station which were recommended in the report, already referred to, on "Transportation in the Metropolitan District." In an appendix filed with that report the changes proposed were described as follows:—

The plan calls for using the central circular area exclusively as a loading area, and the outer circular platform as an unloading platform. The adoption of this method of operation would require, first, the removal of the iron fence now lining the inner edge of the loop track. It will be necessary to close the stairway leading from the bridge from southbound elevated tracks directly to the present outer loading platform of the east loop. All passengers for east loop cars will then take cars from the central circular loading area before referred to. Cars coming into the upper prepayment area, on the east loop track will stop at any point on the loop that traffic will permit and discharge passengers anywhere on the outer platform. When the car has been emptied of passengers, doors on the side of the unloading or outer platform should be closed, and the opposite ones opened to permit loading from the central loading area.

Such an arrangement accomplishes three things that should improve conditions now existing. First, only one stop is required for each car for the unloading and loading operations; second, the available space for cars unloading and loading is increased; third, the maximum distance from the center of loading area to any car in a loading position will be less than that now obtaining. A number of other minor advantages will result which appear to offset the disadvantages. The enclosed circular construction now occupying a portion of the central area and containing waiting-room, barber shop, etc., should be removed. This will permit a better view of cars and make them more ready of access.

Certain objections were made by the company to the changes suggested, but the Commission is of the opinion that some of these objections are not well founded, and that others can be as well urged against the present method of operation. The Commission has therefore ordered the company to put these changes into effect, and a copy of the order in relation thereto is annexed to this report.

Under this plan the standing room for passengers waiting to load at the east loop will be increased by approximately 2,000 square feet, or about 50 per cent. The car movement will also be accelerated, as the cars will be able to load and unload with one stop, and nearly double the number of cars may be loaded and unloaded at one time. In order to improve the efficiency of operation the Commission has also ordered the company to install an indicator showing the stopping place of each car during the evening rush hours.

In this connection it appears that the Elevated company endeavors to secure revenue from its station enclosures by leasing portions of the areas for mercantile purposes. This tendency should be discouraged, especially at crowded stations like Dudley street. These stations are intended to be used for transportation and not for trading purposes, and no commercial establishments should be allowed within the areas which interfere in any material respect with their functions as agencies of rapid transit. The Commission in its order has provided for the removal of the entire structure, including the bootblack stand and barber shop, which now stands in the central area of the east loop, as well as the flower stand and other obstructions on the platform and passageways leading from the east loop to the platform for north-bound elevated trains.

At the suggestion of its engineering department the Commission has also ordered the company to make certain changes in the present method of operating cars on the surface level of the station. This plan involves the construction of a switch connection between the westerly track in Warren street and the most northerly track on the surface level of the station, and a rearrangement of the present method of operation, so that all surface cars from the north which loop back from the surface level of the station and which now enter and leave by Washington street, shall be diverted at the corner of Washington and Warren streets so as to enter the station from Warren street over the new switch connection and loop back by way of Washington street. Under this plan nearly 60 cars an hour will be diverted from the tracks on this level which are most congested. This will result in a better distribution of both cars and passengers and will thus make possible a fuller utilization of existing facilities and a greatly improved service on the lines operating to and through the surface level of the station.

It appears also that the congestion at Dudley street incident to the loading and unloading of passengers is aggravated by the

overcrowding of the elevated trains during the rush hours. The only immediate relief that seems possible is to increase the number of cars on each train. At the present time the company operates six-car trains during the morning rush hours and seven-car trains during the evening rush hours. As stated in the order accompanying this report, the company, at the suggestion of the Commission, has agreed to operate seven-car trains during the morning rush hours and eight-car trains during the evening rush hours. Certain rearrangements of signals and other facilities are now being made in order to permit of the operation of eight-car trains, and it is expected that the new service will be in operation on and after February 5 of this year. The Commission will keep this service under observation, and if it should appear that the increase of these trains from six cars to seven cars during the morning rush hours is not sufficient to relieve present overcrowding, it will amend its order so as to provide for the operation of eight-car trains during the morning as well as the evening rush hours.

As the result of the various changes in facilities and operation hereinbefore referred to — all of which are likely to be made effective within six months from this time — the Commission is of the opinion that relief will be afforded from present conditions which have long been the subject of just complaint by the travelling public. It should also be pointed out that, upon the completion of the Dorchester tunnel to Andrew square, several Dorchester lines now terminating at Dudley street will be diverted to the new tunnel, thus further relieving the present congestion at Dudley street.

#### PAPER TRANSFERS AT DUDLEY STREET.

The resolve further requires the Commission to investigate "the advisability and practicability of requiring the Boston Elevated Railway Company to issue to each passenger a free transfer ticket enabling him to transfer from any car of said company running into said station or terminal, or on any street adjoining the same, to any other car of the said company going in the same general direction as the car on which the transfer ticket was issued and running from any part of said station or terminal or on any street adjoining the same."

As the transfer facilities thus indicated are now furnished through the bodily transfer of passengers within the prepayment area of the Dudley street terminal, the only question raised by this portion of the resolve is the advisability and practicability

of providing a different method of transfer through the use of paper transfer checks.

The resolve apparently contemplates the issue of paper transfers, not only to and from surface lines which might be diverted from the station enclosure to adjoining streets, but also on lines that should continue to be operated to or through the terminal station. It was, however, admitted by the proponents of this plan that the entire removal of the fence surrounding the station enclosure and the elimination of the present prepayment area would probably not prove practicable. As it was not contended that passengers should have the option of receiving either paper transfers or facilities for bodily transfer — a duplication of transfer facilities which, we believe, would be wholly without precedent in street railway operation — the instant inquiry resolves itself into a question of the expediency of providing in the case of certain lines for the transfer of passengers upon the streets adjacent to the terminal station through the use of paper transfers rather than within the station area by means of a bodily transfer.

Those who advocated this change failed to show in what respect the use of paper transfers as a general policy of railway operation has any inherent advantage for the travelling public as compared with a bodily transfer. On the other hand, a bodily transfer facilitates a more rapid and efficient car movement and usually permits a quicker and easier transfer by passengers without exposure to inclement weather and without danger from vehicular traffic in the streets.

Moreover, the enormous number of paper transfers issued by the company, amounting to over one hundred million a year, makes it practically impossible to provide in any effective way against their misuse. From data presented in great detail by the company it seems clear that the illegitimate use of the paper transfers deprives the company of a substantial annual revenue which might otherwise be available for needed improvements in its present transportation facilities. Of course, where paper transfers are necessary in order to provide reasonable facilities for the travelling public, the possibility of their misuse is not an adequate reason for withholding them. At the same time there would seem to be no sound reason for advocating a method of transfer which has proved so wasteful in operation if more economical and equally convenient facilities are available by means of a bodily transfer.

While no attempt was made to dispute the soundness of this



view as an abstract question of street railway operation, it was contended that special conditions at the Dudley street station justify the establishment of the paper transfer system at that point. It was argued that certain surface car lines now terminating at Dudley street or looping back from that point should be routed through to the South End district of Boston in order to provide for the better accommodation of those who prefer to use the surface rather than the elevated lines. Whatever merit such a plan may possess, the issuance of paper transfers is not necessary for its adoption, as the lines in question could be thus rerouted through the prepayment area of the terminal station. It was claimed, however, that the present congestion of traffic makes it advisable to remove certain lines from the station enclosure and to provide for the transfer of passengers in the adjoining streets.

It is true that such an arrangement, by making it inconvenient for passengers to transfer to the elevated lines, would tend to some extent to encourage the use of surface lines, and correspondingly to lessen the congestion in the station. Undoubtedly, however, the large majority of the passengers using the surface lines would still transfer to the elevated lines in spite of the added inconvenience of the proposed plan of operation. Experience has shown that the desire for rapid transit is the controlling motive of most street railway patrons, and that, except for relatively short distances, surface lines operating through congested city streets are not likely to divert any large number of passengers from rapid transit lines serving the same territory. Any attempt to interpose artificial barriers to the normal movement of travel and thus to force it into other channels is likely to prove abortive, and to result only in arousing a just resentment on the part of the travelling public.

The necessity of providing some practical means of relief for the existing congestion at the Dudley street station is imperative, but the Commission is convinced that this can be done much more effectively and with much greater satisfaction to the travelling public by the diversion of certain lines to Egleston square and by the alterations in the station structure and the changes in the method of operation already described, than by the removal of surface lines from the station to adjacent streets and the establishment of a paper transfer system.

It may be added that little evidence was submitted of any demand by patrons of the railway residing beyond the vicinity of Dudley street for the establishment of paper transfers. The

only active interest in favor of that proposal was shown by merchants and property owners at or near the Dudley street terminal. Their attitude seemed to be due largely to the belief, openly expressed by some of them, that the use of paper transfers at this point would permit a stop-over which would encourage trading with local merchants and thus stimulate business and enhance real estate values.

With respect to this aspect of the case the Commission is in full accord with the views expressed by the board of railroad commissioners in its decision upon complaints of residents of Roxbury and Charlestown relative to transfers at the Dudley street and Sullivan square stations of the Boston Elevated railway (38th Ann. Rep. R.R. Com., 1906, p. 70): —

Some time ago the Boston Elevated Railway Company changed its method of transferring passengers at the Dudley street and Sullivan square stations, doing away with the unsatisfactory issue of transfers through transfer agent and substituting waiting-room accommodation. This change was in the direction of quick and continuous travel, and introduced a method of transfer long in use at other stations.

The complainants, who are engaged in business at and near these places, wish us to recommend a return to the old order of things, apparently upon the theory that the company owes them a duty to so transfer passengers that they may attend to business while waiting to take connecting cars.

Transfer checks were never designed to give stop-over privileges but were issued solely for the purpose of enabling passengers to make a single journey between two points as nearly continuous as possible for one fare.

The present arrangement for transferring passengers is a better way than that formerly in vogue as far as the legitimate use of the railway is concerned. Such incidental loss of business as may result to persons other than passengers from the abandonment of transfer checks at these points is not a grievance for which the Board can provide a remedy. Passengers who so desire can freely take and leave cars at these stations. If they wish to continue their journey for a single fare they are afforded a convenient way for doing it.

#### DALE STREET STATION.

The resolve also directs the Commission to investigate the "general necessity and practicability of an elevated station at the corner of Dale and Washington streets." Dale street runs from Washington street to Warren street, crossing Humboldt avenue, and is about 2,800 feet southerly from the Dudley street station and about 3,700 feet northerly from the Egleston square

station. Between these points and passing Dale street there is a double-track surface line in Washington street under the elevated structure. The cars on this line run to the west loop of the Dudley street station, where passengers can transfer to elevated trains at the same level.

The schedule running time from Dale street to Dudley street is  $3\frac{1}{2}$  minutes by the surface cars and 2 minutes by the elevated trains, a difference of a minute and a half in favor of the elevated train service. The surface cars, however, are operated on more frequent headway and there is also a more frequent train service from Dudley street than from Dale street. It is doubtful, therefore, if the actual saving of time through the use of a station at Dale street would more than offset the added inconvenience of climbing the stairway to the station, especially if passengers boarding the elevated train at that point were obliged to transfer at Dudley street in order to reach points on the Atlantic avenue elevated line or on any of the surface lines operated from the Dudley street station.

It is difficult to make any accurate estimate of the number of people who would be likely to use an elevated station at Dale street. The advantage, if any, of that method of transportation would be confined to those who now board the surface cars at Dale street and the streets immediately adjacent thereto. Counts made by the company of the number of persons daily boarding and leaving the cars at Kingsbury street, Dale street and Cedar street show approximately 1,400 on the inbound trips and 1,600 on the outbound trips. It is not clear, however, that all these passengers would use a station at Dale street, as many would be likely to continue to use the surface lines.

On the other hand, about 40,000 passengers daily use the elevated lines south of Dudley street, both inbound and outbound, and this number is likely to be increased to 50,000 by the diversion of the Mattapan line to Egleston square. All of these passengers would be subjected to a delay of about two minutes daily on account of the inbound and outbound stops at Dale street if a station were erected at that point.

The company estimated that the cost of installing a station at Dale street, using the cost of the Green street station as a basis, would be about \$88,000, and that the annual expense of maintenance, including fixed charges, would be about \$28,000. The actual cost would probably be found to be less than the company's estimate, but that question need not be determined, as considerations other than cost in this case must be controlling.

It is to be remembered that the main purpose of the establishment of the subways and elevated lines of the Boston Elevated Railway was to provide rapid transit. That purpose can best be accomplished by operating high speed lines, preferably above or below the surface or on private right of way, from the outlying districts to the center of the city; by developing surface lines as feeders to these main arteries of travel; and, so far as practicable, by erecting stations on these rapid transit lines only at the points of intersection of surface lines. The erection of a station at Dale street would not be consistent with that policy, as there are no intersecting surface lines at that point.

In view of all the circumstances and conditions as above described, the Commission is of the opinion that the installation of an elevated station of the Boston Elevated railway at Dale street would not be in the general public interest.

In so far as the present street railway service on Washington street at and near Dale street may be unsatisfactory, the Commission believes that the proper remedy is to furnish more adequate and convenient service on the surface line serving this territory. Observations have been made by the inspection department of the Commission to determine both the sufficiency and the regularity of the present service. From these observations it appears that the company is now furnishing reasonable service to the patrons of this line except during the evening rush hours, but that additional cars should be provided between Dudley street and Egleston square during the period from 4.45 P.M. to 6.30 P.M. to meet the present demands of travel during these hours. The Commission has therefore directed the company to furnish additional service on this line during that period.<sup>1</sup> This increase in service should result in the elimination of overcrowding on this line and, by decreasing the present headway during these hours, should enable passengers, on the average, to reach Dudley street in somewhat less time than at present.

Respectfully submitted,

FREDERICK J. MACLEOD,  
EVERETT E. STONE,  
JOHN F. MEANEY,  
JOSEPH B. EASTMAN,  
CHARLES A. RUSSELL,

*Commissioners.*

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<sup>1</sup> For text of order on this subject, see page 382.



REPORT OF THE PUBLIC SERVICE COMMISSION  
UNDER THE RESOLVE OF THE GENERAL COURT  
PROVIDING FOR AN INVESTIGATION AS TO THE  
EXPEDIENCY OF LEGISLATION RELATIVE TO  
EXTENSION TELEPHONES AND TO TELEPHONE  
CHARGES.

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*To the Honorable the Senate and House of Representatives of the Commonwealth of Massachusetts.*

Chapter 42 of the Resolves of 1915 is as follows: —

*Resolved*, That the public service commission is hereby directed to investigate the expediency of enacting legislation relative to extension telephones and to telephone charges in certain cases, substantially as set forth in senate document number eighty-eight of the year nineteen hundred and fourteen. The commission shall report the result of its investigation to the general court as soon as is practicable.

For more convenient reference, "senate document number eighty-eight of the year nineteen hundred and fourteen" is given in full in Appendix A. It provides for certain changes in the method of charging for extension telephones and for the listing of names in telephone directories, and also has a provision whose purpose is to give subscribers the right, under certain conditions, to install extension telephones at their own expense and connect them with the company's lines.

So far as charges or methods of charging are concerned, the question asked by the resolve may easily be answered. No legislation is expedient, for the powers already conferred upon the Commission clearly cover such matters. If the Commission, either upon complaint or upon its own motion, finds that the charges of any telephone company are in any respect unjust or unreasonable, it may, by order, prescribe such rates or charges as it finds to be just and reasonable (St. 1913, c. 784, § 22). The chief purpose, it seems, of Senate Document No. 88 of the year 1914 was to effect a change in the method of charging for extension telephones which would result in lower charges. While it provides, also, for a change in existing practices and charges in connection with the listing of names in telephone directories, this change has not been strongly urged. Eliminating this latter

question for the time being, therefore, the Commission, upon its own motion, has investigated existing charges for extension telephones and has issued an order relative to such charges. This order and the opinion accompanying it are attached hereto as Appendix B. It provides for a reduction in the charge for extension telephones to users of measured service, except in the case of private branch exchanges, from \$6 per year to \$4 per year.

Apart from charges and methods of charging, Senate Document No. 88, as aforesaid, raises this further question: Should subscribers be given the right to install telephones at their own expense and to have them connected with the company's lines? There is little reason to believe that the Commission has the right, under existing laws, to compel telephone companies to make or permit such connections. If such authority is desirable and if it is within the power of the general court to grant it, additional legislation is clearly expedient.

At the public hearings, independent manufacturers of telephone apparatus appeared before the Commission and objected strenuously to the conditions prevailing in this respect at the present time, which they claim tend unfairly to limit their market. These manufacturers make telephone instruments which they contend are quite as efficient as those manufactured for the New England Telephone and Telegraph Company by the Western Electric Company, and apparently succeed to some extent in selling them in competition with the latter company, especially for private interior installations, — that is, for installations providing telephonic communication, for example, between the various rooms of a factory, hotel, or apartment house. Where the owner of such a building, however, desires to connect such an installation with the wires of the New England Telephone and Telegraph Company, so that it can be used, not only for interior communication but in the regular telephone service, he finds that he cannot do this unless he installs Western Electric Company apparatus identical with that used by the New England company. This fact, the independents urge, makes it impossible for them to compete in such cases and unfairly closes an important part of the market to their goods. Their contention, summarized, is as follows (Record, p. 153): —

This situation could be corrected by legislation, permitting the purchase of standardized apparatus for interior installations from manufacturing companies other than the Western Electric Company, and requir-

ing that the operating Bell company should connect, when requested, such apparatus for outside service. It would result in putting the extension sets of interior telephone apparatus on a fair competitive basis, which would result in a great saving to the public over the rates now paid. As the fundamental patents upon telephones have expired by limitation, and as the manufacturing of telephones for interior installation is not a complicated electrical or manufacturing problem, a proper standardizing of such instruments could be easily made, and instruments installed thereunder would in no way interfere with the efficiency of the outside installation of the operating Bell company.

On the other hand, the New England Telephone and Telegraph Company contends that it cannot properly furnish to the public as a whole the service which it ought to furnish, unless it has complete control of the situation and the absolute right to determine what instruments shall be used by its subscribers. It points out that the instruments which any particular subscriber uses have a relation, not only to the service which he receives, but to the service which every other subscriber receives who wishes to communicate with him. This contention was summarized by counsel as follows (Record, p. 44): —

The instrument is just as integral a part of that whole general system as the keyboard. It is the place from which the signalling starts, it is the place at which the signals eventually end. And for anyone else other than the people who have the responsibility for that service to come in and be able, no matter under what careful supervision, to undertake to put on at the end of these wires instruments and signalling apparatus, as it looks to us, would be an almost unheard of possibility, as a practical matter.

I am telling now of the public interests as well as of the interests of the company. As long as we have the responsibility for the service, we feel that we have a right to insist that we shall have a control of every part of that service and every part of the mechanism.

The question thus raised is important and by no means easy to decide. As pointed out in the special report (House, No. 1856) which the Commission made to the House of Representatives last year, the American Telephone and Telegraph Company, which controls the New England Telephone and Telegraph Company and many other similar companies through ownership of stock, also controls in the same manner the Western Electric Company, a corporation engaged in the manufacture of telephone instruments and apparatus. The contract between the New England Telephone and Telegraph Company and the Western

Electric Company was given in full in this special report made last year. To quote from that report (page 19): —

Summing it up, the contract makes the Western Electric Company, in effect, the exclusive purchasing agent of the New England company. Practically all the material and supplies which the latter company uses must, under the terms of this agreement, be bought through the Electric company which receives, for this service, compensation on a varying percentage basis. Some of these supplies are manufactured or assembled by the Electric company itself, but in many other cases it acts only as a jobber. In addition, under the contract, the New England company employs the Electric company to perform for it certain special services, such as inspection and repair work, which are enumerated in section 4.

This contract and the common control raise a question which may be briefly stated in this way: Is it in the public interest to permit a company which enjoys a monopoly of the telephone service in a particular territory to extend its monopoly into the field of manufacturing by granting to one company, without competition, the exclusive privilege of furnishing telephone apparatus and supplies in general? If such a situation is not in the public interest it could be cured, conceivably, through legislation such as the independent manufacturers suggest, or the telephone company could be required, as municipalities are often required, to make its purchases in the open market after securing competitive bids upon proper specifications.

On the other hand, it is no doubt possible that the telephone company may be able to demonstrate its claim that the existing arrangement produces, on the whole, the most economical results, and is, in other respects, in the public interest. As yet, it has not had the opportunity. The arrangement is one of the numerous reasons for the general investigation of the whole telephone situation which the Commission recommended in its special report last year, a recommendation which was repeated in its annual report to the general court this year. The problem is by no means simple and is deserving of the most careful consideration. In the judgment of the Commission, it can be studied to best advantage, not as an isolated proposition, but in connection with a general investigation for which adequate funds are provided. Until the Commission knows, therefore, whether such an inquiry is to be authorized, it has deemed it wise to defer further consideration of the question raised by the independent manufacturers and to reserve it, without prejudice, for future action.



In this connection, the Commission directs the attention of the general court to the report and order (attached hereto as Appendix B) relative to existing charges for extension telephones.<sup>1</sup> For reasons given in that report, the Commission feels that any final disposition of the extension telephone question should not be attempted in advance of an inquiry into the rate schedule as a whole. The reduction ordered in the charges for telephone extensions used in connection with measured service tends to correct what seemed clearly to be an unreasonable charge; but it may ultimately prove, in connection with a general inquiry, that other reductions are desirable.

Respectfully submitted,

FREDERICK J. MACLEOD,  
EVERETT E. STONE,  
JOHN F. MEANEY,  
JOSEPH B. EASTMAN,  
CHARLES A. RUSSELL,

*Commissioners.*

MARCH 20, 1916. [P. S. C. 923]

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<sup>1</sup> For report and order referred to herein, see pages 214-228.

## EXPENSES OF OFFICE.

### EXPENDITURES FOR YEAR ENDED NOVEMBER 30, 1916.

Commissioners' salaries, . . . . .	\$40,500 00
Secretaries' salaries, . . . . .	10,500 00
Accounting Department, . . . . .	8,500 00
Engineering Department, . . . . .	11,600 00
Inspection Department, . . . . .	33,318 17
Rate and Tariff Department, . . . . .	4,000 00
Telephone and Telegraph Department, . . . . .	6,500 00
Clerical assistance and messenger services, . . . . .	12,004 18
Experts, . . . . .	1,631 60
Office supplies and contingent expenses, . . . . .	10,069 10
Printing and binding annual report, . . . . .	11,577 73
Rent of office, . . . . .	13,500 00
Stenographic reports of hearings, . . . . .	6,172 85
Total, . . . . .	\$169,873 63
Bay State Street Railway fare case, . . . . .	\$9,117 84

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